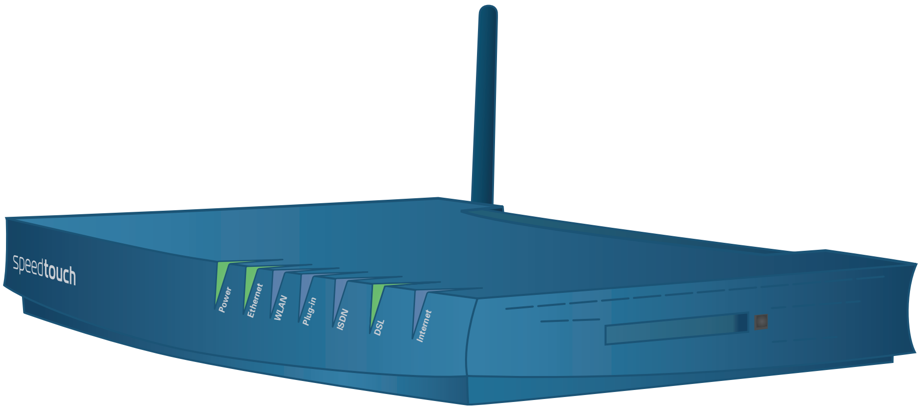
speedtouch™

SpeedTouch™620

Wireless Business DSL Routers

Operator's Guide



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THOMSON

SpeedTouch™

620

Operator's Guide

speedtouch™

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Contents

About this Operator's Guide

Used Symbols

✎ A ***note*** provides additional information about a topic.

💡 A ***tip*** provides an alternative method or shortcut to perform an action.

⚠ A ***caution*** warns you about potential problems or specific precautions that need to be taken.

Terminology

Generally, the SpeedTouch™620 will be referred to as SpeedTouch™ in this Operator's Guide.

Typographical Conventions

When we display interactive input and output we'll show our typed input **`in a bold font`** and the computer output `like this`.

Comments are added *`in italics`*.

Example:

```
=>language list
CODE LANGUAGE VERSION FILENAME
en*  english  4.2.0.1 <system>     Only one language is available
```

Documentation and software updates

THOMSON continuously develops new solutions, but is also committed to improve its existing products.

For more information on THOMSON's latest technological innovations, documents and software releases, visit us at:

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1 Introduction

Overview

Being a key component of your business network, a good operation of the SpeedTouch™ is essential to gain maximum performance of your DSL connectivity.

Continuous management and diagnosis of the SpeedTouch™ should be performed to ensure a faultless operation of the SpeedTouch™, 24hours a day, 7 days a week.

As such the SpeedTouch™ can be perfectly embedded in high quality networks.

Applicability

This Operator's Guide applies to the SpeedTouch™620 Wireless Business DSL Router.

Contents

This Operator's guide consists of 2 major parts:

- Configuration:
  - How to manage the SpeedTouch™ system configuration.
  - The SpeedTouch™ Command Line Interface.
  - How to manage the SpeedTouch™ system software.
  - How to activate software modules with activation keys.
  - How to configure the SpeedTouch™ system services.
  - The SpeedTouch™ file system.
  - How to access the SpeedTouch™ remotely.
  - How to use the integrated ISDN Modem of SpeedTouch™.
- Monitoring and debugging:
  - How to monitor the SpeedTouch™.
  - How to identify the SpeedTouch™ with AWS.
  - The SpeedTouch™ Advanced Diagnostics.
  - SLA Monitoring.
  - How to reset the SpeedTouch™ to defaults.

2 SpeedTouch™ Command Line Interface

2.1 About the CLI Interface

CLI access

You can access the Command Line Interface via:

- The SpeedTouch™ CLI Web Interface
- A Telnet session
- The serial Console interface.

CLI web page access requirements

To access the CLI via the SpeedTouch™ Web Interface, you need:

- A TCP/IP connection between the computer and the SpeedTouch™.
- A web browser on your computer. The web browser should be at least Microsoft's Internet Explorer 4.0, Netscape's Communicator 4.06, or equivalent. The web browser must support Java Script.

CLI Telnet access requirements

To access the CLI via an IP Telnet session, you need:

- A TCP/IP connection between the computer and the SpeedTouch™.
- A Telnet application on the computer.

All popular, recent Operating Systems feature a built-in telnet application.

CLI serial access requirements

To access the CLI via the serial Console port, you need:

- A cable.
- A terminal application that you can use to connect to other devices.

  Example: Hilgraeve’s Hyperterminal application delivered with MS Windows OSs.
- The following application’s Port settings:
  - 9600 bits per second
  - 8 data bits
  - No parity
  - One stop bit
  - No Flow control
- ANSI terminal emulation

2.2 CLI Access via Telnet or Serial Console

Access via a Telnet session or serial console

As soon a session to the CLI is opened, a banner pops up, followed by the CLI prompt:

```
------------------------------------------------------------------------

                             ______  SpeedTouch 620
                         ___/_____/\
                        /         /\  5.4.0.10
                  _____/__       /  \
                _/       /\_____/___ \  Copyright (c) 1999-2005, THOMSON
               //       /  \       /\ \
       _______//_______/    \     / _\/______
      /      / \       \    /    / /        /\
   __/      /   \       \  /    / /        / _\__
  / /      /     \_______\/    / /        / /   /\
 /_/______/___________________/ /________/ /___/  \
 \ \      \    ___________    \ \        \ \   \  /
  \_\      \  /          /\    \ \        \ \___\/
     \      \/          /  \    \ \        \  /
      \_____/          /    \    \ \________\/
           /__________/      \    \  /
           \   _____  \      /_____\/
            \ /    /\  \    /___\/
             /____/  \  \  /
             \    \  /___\/
              \____\/

------------------------------------------------------------------------
```

If the SpeedTouch™ is protected by a system password, authentication will be required before access is granted to the CLI.

2.3 Basic Navigation

Command group navigation

From the top level, you can change to a command group by executing the name of the desired command group (for example type the name of the command group and press ENTER).
To obtain a list of all available command groups, use the **help** command from the top level:

```
=>:help
Following commands are available :

help              : Displays this help information
menu              : Displays menu
?                 : Displays this help information
exit              : Exits this shell.
..                : Exits group selection.
saveall           : Saves current configuration.
ping              : Send ICMP ECHO_REQUEST packets.
traceroute        : Send ICMP/UDP packets to trace the ip path.
telnet            : Open a telnet connection to a server.

Following command groups are available :

firewall        service         autopvc         connection      cwmp
dhcp            dns             dsd             dyndns          eth
expr            ids             igmp            ip              isdn
adsl            atm             capi            config          debug
env             hostmgr         interface       ipqos           label
language        mbus            memm            mlp             nat
ppp             pptp            rcapi           router          script
sla             snmp            sntp            software        ssh
syslog          system          tunnel          upnp            user
wireless
```

The exact list of available command groups depends on the type of SpeedTouch™, the number and kind of activated software modules and on the current version of the SpeedTouch™ System software.

To return to top level, or to go up one level (in case of nested command groups), type two dots and press ENTER.

Help

You can use `help` or `?` from any level to list all available commands and command groups for that level. Below an example is provided of executing help from the firewall command group selection:

```
=>:firewall help
Following commands are available :

config          : Display/Modify firewall configuration.
list            : Display firewall configuration.
flush           : Flush firewall configuration.

Following command groups are available :

chain           debug           level           rule
```

Executing `:help firewall` from top level gives the same result.

Entering `help` followed by a specific command, for example `:help firewall list` (starting from top level) or `help list` (entered from within the firewall command group selection) results in a description of the syntax for the command:

```
=>:help firewall list
Display firewall configuration.
Syntax : list [format = <{pretty|cli}>]

Parameters :
   [format = <{pretty|cli}>]
     The format of the firewall list.
```

Executing `:help all` from top level will generate the complete listing of all available CLI commands (including syntax description). If entered from within a CLI command group, the listing of all available CLI commands from that CLI command group (including syntax description) are shown.

Command completion

The CLI features command completion, which means that when starting to type a command it can be completed by pressing TAB.

For the completion to be successful, the part already typed has to be unique. Completion works for the command groups, for the commands and the options, but not for values.

For example, typing the letter ***l*** at the firewall command group selection, followed by pressing TAB results in the full command being completed. Entering `firewall l` from top level and pressing TAB gives the same result: the command is completed to `firewall list`.

Going to the beginning or end of a line

You can move the cursor to the beginning of the command line by pressing "CTRL+A"; to move the cursor to the end of the Command Line press "CTRL+E".

Breaking off commands

You can break off a command by pressing "CTRL+G". This can be useful in a situation where a user wants to abort the command. This can be useful to break off commands for which the user does not know the value of a required command parameter.

History of Commands

The CLI allows you to re-use commands you have used before during a CLI session. To scroll through the previously used CLI commands use UP ARROW and DOWN ARROW.

To execute a re-used command, press ENTER.

2.4 Command Line Interface Commands

Executing Commands from the Top Level

All CLI commands are commands that operate on, or configure, the SpeedTouch™ settings.

You can use these commands from top level, preceded by the name of the command group from which the command should be executed (for example **`firewall list`**).

```
=>:firewall list

Config
======
State             : disabled
Keep              : disabled
TcpChecks         : none
TcpWindow         : 65536
UdpChecks         : disabled
IcmpChecks        : disabled
LogDefault        : disabled
LogThreshold      : enabled

Modules
=======
Module           State    Text                                  Hooks
-----------------------------------------------------------------------
fire             enabled  Firewall Administration Module sink, forward,
 source
host_service     enabled  Firewall Host Service Module          forward
level            enabled  Firewall Level Module                 forward
system_service   enabled  Firewall System Service Module           sink
=>
```

Executing Commands from the Command Group

You can also enter the commands from the command group itself, using the reduced form of the command (for example **`list`** at the firewall command group selection):

```
=>firewall
[firewall]=>list

Config
======
State            : disabled
Keep             : disabled
TcpChecks        : none
TcpWindow        : 65536
UdpChecks        : disabled
IcmpChecks       : disabled
LogDefault       : disabled
LogThreshold     : enabled

Modules
=======
Module           State    Text                                Hooks
-----------------------------------------------------------------------
fire             enabled  Firewall Administration Module      sink, for
ward, source
host_service     enabled  Firewall Host Service Module        forward
level            enabled  Firewall Level Module               forward
system_service   enabled  Firewall System Service Module      sink
```

“!” in a command means ***NOT***, for example the [**`!`**] parameter in the firewall rule create command [**`srcintf [!]= <string>`**] parameter.

Executing Commands from Anywhere

It is possible to enter a command from anywhere within the CLI, provided the command is preceded by a colon (:) and the full command path, e.g.:

```
[firewall]=>:ip rtlist
```

Using Partial Command Statements

Instead of typing a complete command with all of its required and optional parameters and pressing ENTER, you can also enter the command itself, without specifying any parameter. If all parameters are optional, the command is executed immediately, assuming default values for all parameters. In case the CLI command features required parameters, you are prompted to complete the command with the required (and the optional, if present) parameters. For optional parameters you can simply press ENTER without giving a value (to assume default value). In case the parameter provides preset values, you can scroll through these via the UP and DOWN arrow keys. For example, the **`addroute`** parameter below has two preset values enabled and disabled:

```
=>:ip ipadd
intf = lan1
addr = 10.1.5.31
[netmask] = 8
[pointopoint] =
[addroute] = enabled
:ip ipadd intf=lan1 addr=10.1.5.31/8 addroute=enabled
```

Saving the configuration

After configuring the SpeedTouch™ via the CLI, it is advised to save your configuration.

You can save the complete SpeedTouch™ configuration to persistent memory by executing the **`saveall`** command.

The **`saveall`** command can be entered from any CLI prompt.

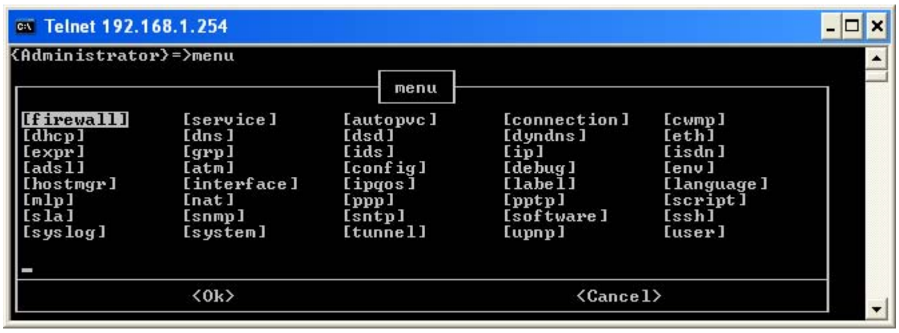
2.5 Menu-driven CLI Navigation

Introduction

To improve the user-friendliness of the SpeedTouch™ CLI, the CLI features a menu-driven interface.

Entering the CLI menu

To enter the menu-driven interface, simply enter the command **menu** from the CLI prompt:



```
{Administrator}=>menu
                                      menu

 [firewall]    [service]     [autopvc]     [connection]  [cwmp]
 [dhcp]        [dns]         [dsd]         [dyndns]      [eth]
 [expr]        [grp]         [ids]         [ip]          [isdn]
 [adsl]        [atm]         [config]      [debug]       [env]
 [hostmgr]     [interface]   [ipqos]       [label]       [language]
 [mlp]         [nat]         [ppp]         [pptp]        [script]
 [sla]         [snmp]        [sntp]        [software]    [ssh]
 [syslog]      [system]      [tunnel]      [upnp]        [user]

 _

                     <Ok>                              <Cancel>
```

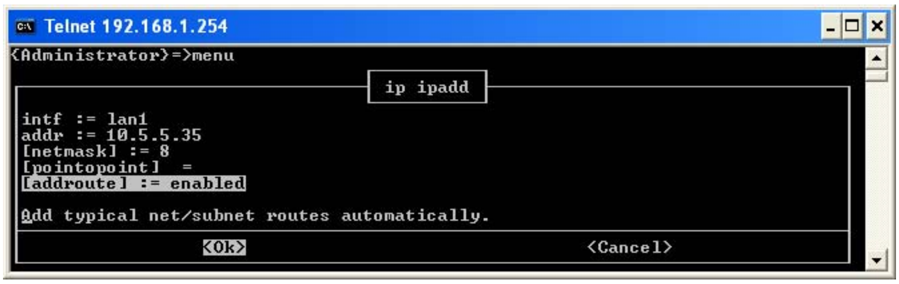
The semi-graphical CLI offers you an attractive and easy-to-use configuration environment for the CLI.

You can browse through the CLI command groups via the arrow keys. Pressing ENTER executes your selection, i.e. for entering a CLI command group. From each level you can select .. and press ENTER to go up one level.

Use TAB to change from the command menu to the control menu (the lower bar of the menu) and vice versa.

Executing commands

To setup a CLI command, simply press ENTER on its name. You can configure and overview its various parameters at once. In case the parameter provides preset values, scroll through the available values via the UP and DOWN arrow keys. If you are satisfied with all parameter values, use TAB to select **<OK>** and press ENTER to execute the command:



```
{Administrator}=>menu
                                   ip ipadd

 intf := lan1
 addr := 10.5.5.35
 [netmask] := 8
 [pointopoint]  =
 [addroute] := enabled

 Add typical net/subnet routes automatically.
                      <Ok>                             <Cancel>
```

Saving the configuration after configuring the SpeedTouch™ via the CLI, it is advised to save your configuration.

Save the complete SpeedTouch™ configuration to persistent memory by executing **saveall** after exiting the menu-driven CLI via **<Cancel>** from root menu.

3 SpeedTouch™ System Software

3.1 About the System Software

Upgrade system software

For new system software packages, you can visit the SpeedTouch™ support pages at: http://www.speedtouch.com

System software packages and security

All SpeedTouch™ system software packages are:

- Digitally signed and encrypted:
  Packages that may have become corrupted, or have been altered in any way, will not be accepted by the SpeedTouch™.
- Specific per product.

This way, the SpeedTouch™, or its service can never be corrupted or lost.

3.2 System Software Management via FTP

FTP access

For more information on the SpeedTouch™ file system and how to access it via FTP, see “7 The SpeedTouch™ File System” on page 75.

SpeedTouch™ system software locations

The SpeedTouch™ file system consists of two subdirectories: ‘/active’ and ‘/ dl’.

In the ‘/active’ subdirectory the currently running system software (the active software version) is stored. The ‘/dl’ subdirectory stores the dormant system software (the passive software version).

There are SpeedTouch™ devices where only the ‘/dl’ directory exist (single directory file system).

In case no SpeedTouch™ system software upgrade was performed before, both active and passive software will be the same.

Full read/write access is only granted in the ‘/dl’ subdirectory.

Overview

This section covers the following topics:

Topic	See Page
“3.2.1 Backup System Software via FTP”	17
“3.2.2 Upgrade or Restore System Software via FTP”	19
“3.2.3 Manual System Software Management via BOOTP/ TFTP server”	23

3.2.1 Backup System Software via FTP

Introduction

For backup reasons, you can transfer system software files from both SpeedTouch™'s '/active' and '/dl' subdirectories to your local disk.

Backup procedure

To transfer system software files from the SpeedTouch™ to your local disk as backup, proceed as follows:

Step	Action
1	Open an FTP session to the SpeedTouch™. At the user name prompt, enter a user name and at the password prompt, if applicable, the Password (see "The Multi Level Access Policy Configuration Guide" for more information): C:\>**ftp** <SpeedTouch™ **IP address>** Connected to <SpeedTouch™ IP address>. 220 Inactivity timer = 120 seconds. Use 'site idle <secs>' to change. User (<SpeedTouch™ IP address>:(none)): **JohnDoe** 331 SpeedTouch (00-90-D0-01-02-03) User 'JohnDoe' OK. Password required. Password:##### 230 OK ftp>
2	Enter binary file transfer mode. Optionally you can enable hashing: ftp> **bin** 200 TYPE is now 8-bit binary ftp> **hash** Hash mark printing On ftp: (2048 bytes/hash mark). ftp>
3	Change to the SpeedTouch™ subdirectory from which you want to get the system software file from. In the example below the '/dl' subdirectory is chosen where the currently running - and usually most recent - system software file is stored: ftp>**cd dl** 250 Changed to /dl ftp>

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td><b>4</b></td><td>To identify the system software file name, use the <b>quote site software version</b> command:
<pre>
ftp> quote site software version
200- Flash image : 5.4.0.10.0
200- Active SW   : ZZUIAA5.40A (5.4.0.a.0)
200- Passive SW : ZZUIAA5.40A (5.4.0.a.0)
200-
200 CLI command "software version" executed
</pre>
You can also check for the system software file by making a listing of the subdirectory’s contents:
<pre>
ftp> dir
200 Connected to 192.168.1.60 port 1312
150 Opening data connection for /bin/ls
-rwxrwxrwx   1 0   0   3601488 Jun 29 1971 ZZUIAA5.40A
-rwxrwxrwx   1 0   0   20 Jun 29 1971 start.cmd
-r--r--r--   1 0   0   9 Jun 29 1971 seed.dat
-r--r--r--   1 0   0   790 Jun 29 1971 sslcert.pem
-r--r--r--   1 0   0   963 Jun 29 1971 sslkey.pem
-r--r--r--   1 0   0   692 Jun 29 1971 sshdsa.pem
-rwxrwxrwx   1 0   0   93013 Jun 29 1971 user.ini
226 Options: -l : 7 matches total
ftp: 466 bytes received in 0,00Seconds 466000,00Kbytes/sec.
</pre></td></tr>
<tr><td><b>5</b></td><td>Get the system software file:
<pre>
ftp> get ZZUIAA5.40A
200 Connected to 192.168.1.60 port 1315
150 Opening data connection for ZZUIAA5.40A (3601488)
226 File transfer complete
ftp: 3601488 bytes received in 5,92Seconds 608,46Kbytes/sec.
ftp>
</pre></td></tr>
</table>

As a result the system software file will be stored on the location from where you started the FTP session.

3.2.2 Upgrade or Restore System Software via FTP

Upgrade/Restore procedure

The procedure to upgrade or restore the SpeedTouch™ system software consists of three main steps:

Step	Action
1	Transfer system software to the SpeedTouch™
2	Mark system software file as Passive Software Version
3	Activate the upgrade/ restored system software

Transfer system software to the SpeedTouch™

To transfer a system software file stored on your local disk to the SpeedTouch™, proceed as follows:

Step	Action

1	Open an FTP session to the SpeedTouch™. At the user name prompt, enter a user name. At the password prompt, if applicable, enter the SpeedTouch™ system password (see “The SpeedTouch™ Multi Level Password Configuration Guide”):
	`C:\>ftp <SpeedTouch™ IP address>`
	`Connected to <SpeedTouch™ IP address>.`
	`220 Inactivity timer = 120 seconds. Use 'site idle <secs>' to change.`
	`User (<SpeedTouch™ IP address>:(none)): JohnDoe`
	`331 SpeedTouch (00-90-D0-01-02-03) User 'JohnDoe' OK. Password required.`
	`Password:#####`
	`230 OK`

2	Enter binary file transfer mode. Optionally you can enable hashing:
	`ftp> bin`
	`200 TYPE is now 8-bit binary`
	`ftp> hash`
	`Hash mark printing On ftp: (2048 bytes/hash mark).`

3	Change to the SpeedTouch™ ‘/dl’ subdirectory:
	`ftp>cd dl`
	`250 Changed to /dl`

4	Use the **`quote site software version command`** to check whether a passive system software version is stored in the ‘/dl’ subdirectory :
	`ftp> quote site software version`
	`200- Flash image : 5.4.0.10.0`
	`200- Active SW   : ZZUIAA5.40A (5.4.0.a.0)`
	`200- Passive SW  : ZZUIAA5.40A (5.4.0.a.0)`
	`200-`
	`200 CLI command "software version" executed`

5	In case a passive software version is found, use the **`quote site software deletepassive`** command to delete it:
	`ftp> quote site software deletepassive`
	`200- Flash image : 5.4.0.10.0`
	`200- Active SW   : ZZUIAA5.40A (5.4.0.a.0)`
	`200- Passive SW : ---`
	`200-`
	`200 CLI command "software deletepassive" executed`

Step	Action

6	Put the upgrade system software to the SpeedTouch™ ‘/dl’ subdirectory:
	
	`ftp> put ZZUIAA5.411`
	`200 Connected to 192.168.1.254 port 3638`
	`150 Opening data connection for ZZUIAA5.411`
	`226-Filesystem data garbage collection in progress. This may`
	`take`
	`a while ...`
	`226 File written successfully`
	`ftp: 2314257 bytes sent in 5.05Seconds 464.90Kbytes/sec.`

As a result the system software file is stored on the ‘/dl’ subdirectory of the SpeedTouch™. In addition, the SpeedTouch™ will automatically clean its file system.

Mark system software file as Passive Software Version

You must identify the system software you transferred to the SpeedTouch™ '/dl' subdirectory as passive software version to allow the SpeedTouch™ to mark the file as system software.

Proceeding from the same FTP session you opened to transfer the file, use the **`quote site software setpassive file=<file name>`** command, where <file name> represents the name of the system software file you transferred via the previous procedure:

```
ftp> quote site software setpassive file=ZZUIAA5.411
200- Flash image : 5.4.0.10.0
200- Active SW   : ZZUIAA5.40A (5.4.0.a.0)
200- Passive SW  : ZZUIAA5.411 (5.4.0.a.0)
200-
200 CLI command "software version" executed
ftp>
```

Activate the upgrade/ restored system software

To activate the upgrade or restored system software, the same mechanism as used via the Web Interface is valid: the system software files are switched.

Proceeding from the same FTP session you opened in the previous procedures, use the **`quote site software switch`** command to restart the SpeedTouch™ and activate the newly uploaded upgrade system software:

```
ftp> quote site software switch
200-
Connection closed by remote host.
ftp>
```

During restart, the SpeedTouch™ will switch the passive and active system software files and mark the newly uploaded system software as active software version.

Due to the restart of the SpeedTouch™ any open FTP or Telnet session will be closed.

3.2.3 Manual System Software Management via BOOTP/TFTP server

System software management

The SpeedTouch™ system software can also be updated based on BOOTP, a standard mechanism used for booting diskless stations.

The SpeedTouch™ Upgrade Wizard is based on a BOOTP/TFTP server. For more information on how to upgrade the SpeedTouch™ using its Upgrade wizard, please see the User’s Guide.

The SpeedTouch™ is able to be placed in BOOTP mode, allowing a BOOTP/TFTP server to manage the SpeedTouch™ file system, allowing the SpeedTouch™ to fetch the upgrade files from the BOOTP/TFTP server.

Important note

It is recommended only to use the procedure described below in case you are familiar with the use of a BOOTP/TFTP server, and the mechanisms on which BOOTP is based.

Upgrading the system software via the procedure described below will reset the SpeedTouch™ to its factory default settings. Therefore, prior to performing an upgrade of the system software it is recommended to back up the SpeedTouch™ configuration.

Before you start

You need a third party BOOTP/TFTP server installed on the computer from which you want to perform the SpeedTouch™ system software upgrade.

Make sure that your computer is connected to the SpeedTouch™ via Ethernet. In case of a SpeedTouch™ with USB connectivity, please disconnect the USB interface, if used, to avoid communication errors during the system software upgrade.

It is not possible to upgrade your SpeedTouch™ via a wireless connection!

You will need the SpeedTouch™ Medium Access Control (MAC) address of your SpeedTouch™ device.

Make sure a valid SpeedTouch™ system software image file is available on your local disk.

Procedure

To upgrade/restore the SpeedTouch™ system software:

Step	Action
1	Make sure that your SpeedTouch™ is powered off and that a BOOTP/TFTP server is readily installed on the computer from which you intend to perform the system software upgrade
2	Configure the BOOTP/TFTP server to use the SpeedTouch™ system software image file in its reply to BOOTP requests from the SpeedTouch™ you want to upgrade.
3	To identify the BOOTP requests from the SpeedTouch™, you will need to specify its MAC address and define an IP range for basic communication between the BOOTP/TFTP server and the SpeedTouch™.
4	Set the SpeedTouch™ in BOOTP by executing the :software upgrade CLI command: `=>:software upgrade` The SpeedTouch™ is in BOOTP mode when the power LED is solid orange.
5	The BOOTP/TFTP server will reply to the BOOTP requests and will perform the required operations to allow the system software to be fetched by the SpeedTouch™ via TFTP.
6	After checking whether the received system software is valid for the device, the SpeedTouch™ will start in normal operational mode to complete the upgrade. This step can take some time to complete.

The upgrade process can be followed via a serial console!

4 SpeedTouch™ Configuration Management

Saving the configuration

Whenever the configuration of the SpeedTouch™ has been altered in any way, with the intention to keep this configuration, you should save it.

Whenever you alter the configuration of the SpeedTouch™ via the basic Web Interface, all changes are saved automatically.

You can save the configuration manually in two ways:

- Click **Save All** in the Topics menu of the SpeedTouch™ Expert Mode Web Interface
- Enter `saveall` from the CLI prompt.

Result:

The system creates a **user.ini** text file on the SpeedTouch™ '/dl' subdirectory. This file contains all CLI commands needed to reproduce the configuration present at the moment it was saved.

Backing up configurations

You can make backup files of the SpeedTouch™ configuration for later use.

Backing up saved SpeedTouch™ configurations can be done via the SpeedTouch™ Web Interface or via FTP.

Storing and restoring multiple configurations

The SpeedTouch™ file system allows you to store multiple configuration files. Via the CLI you are able to apply one of these whenever needed, without the need of uploading a configuration file each time you want to switch to a new configuration.

4.1 Configuration Management via the SpeedTouch™ Web Interface

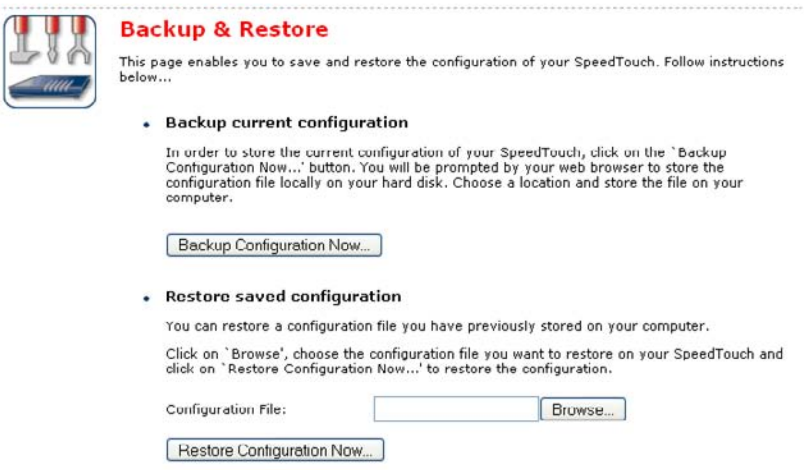
Basic and expert mode

The SpeedTouch™ features two ways of managing its configuration via the Web Interface:

- Via the basic Web Interface
- Via the expert Web Interface

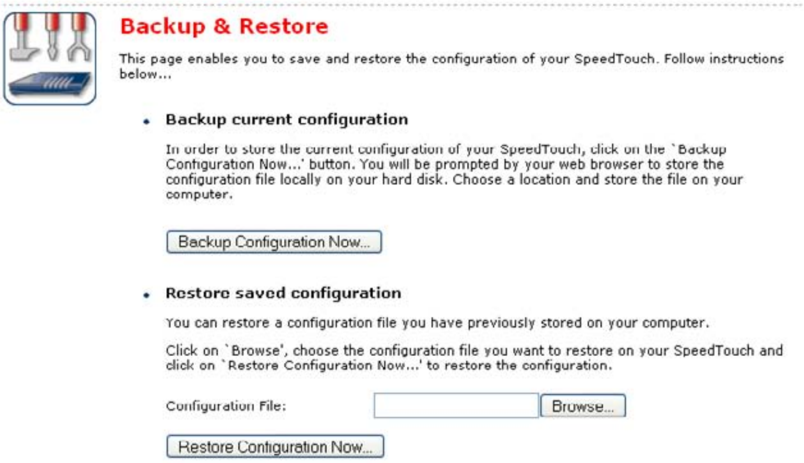
Backing up configurations via the basic Web Interface

Proceed as follows:

Step	Action
1	Open a web browser and go to the SpeedTouch™ Web Interface.
2	Go to **Home > SpeedTouch > Configuration.**
3	Click **Save or Restore Configuration:**  Backup & Restore This page enables you to save and restore the configuration of your SpeedTouch. Follow instructions below... • Backup current configuration In order to store the current configuration of your SpeedTouch, click on the `Backup Configuration Now...' button. You will be prompted by your web browser to store the configuration file locally on your hard disk. Choose a location and store the file on your computer. • Restore saved configuration You can restore a configuration file you have previously stored on your computer. Click on `Browse', choose the configuration file you want to restore on your SpeedTouch and click on `Restore Configuration Now...' to restore the configuration. Configuration File:
4	To back up the SpeedTouch™ configuration, click **Backup Configuration Now**.
5	Click **Save** and select a location on your local disk to store the **user.ini** file.

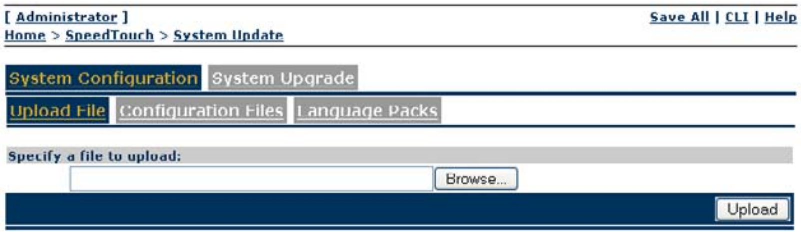
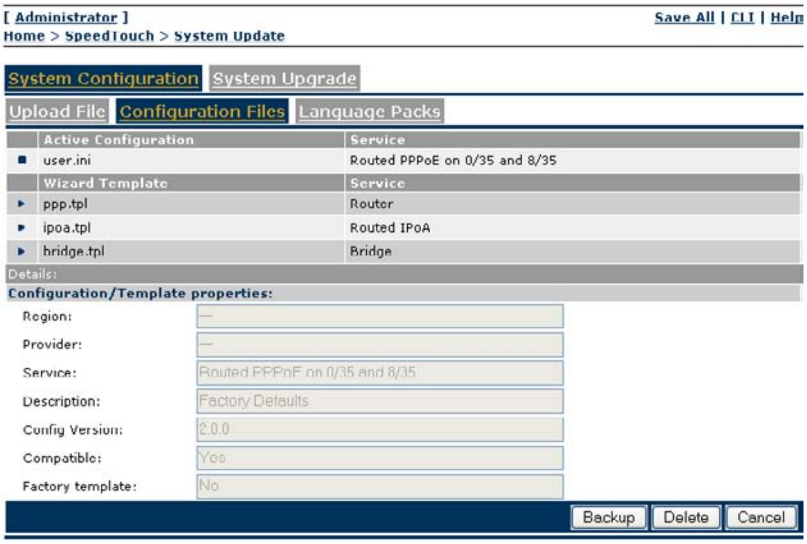
Restoring configurations via the basic Web Interface

Proceed as follows:

Step	Action
1	Open a web browser and go to the SpeedTouch™ Web Interface.
2	Go to **Home > SpeedTouch > Configuration.**
3	Click **Save or Restore Configuration:**  Backup & Restore This page enables you to save and restore the configuration of your SpeedTouch. Follow instructions below... • Backup current configuration In order to store the current configuration of your SpeedTouch, click on the `Backup Configuration Now...' button. You will be prompted by your web browser to store the configuration file locally on your hard disk. Choose a location and store the file on your computer. Backup Configuration Now... • Restore saved configuration You can restore a configuration file you have previously stored on your computer. Click on `Browse', choose the configuration file you want to restore on your SpeedTouch and click on `Restore Configuration Now...' to restore the configuration. Configuration File: Browse... Restore Configuration Now...
4	Click on **Browse** and choose the configuration file, residing on your local disk, you want to restore on your SpeedTouch™.
5	To restore the selected SpeedTouch™ configuration, click **Restore Configuration Now**.

Backing up saved configurations via the expert Web Interface

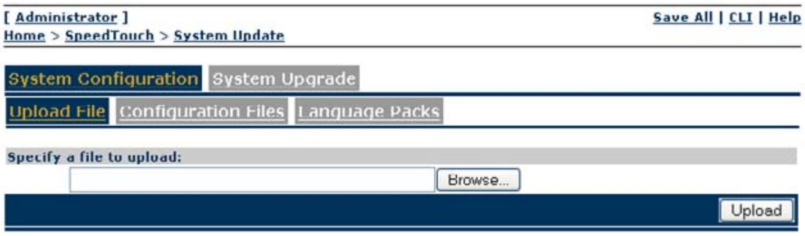
Proceed as follows:

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Open a web browser and go to the SpeedTouch™ Web Interface.</td></tr>
<tr><td>2</td><td>Go to <b>expert mode</b>.</td></tr>
<tr><td>3</td><td>Click <b>Save All</b> to save the current configuration.</td></tr>
<tr><td>4</td><td>Open the Update page via <b>Home > SpeedTouch > System Update</b>:

[Administrator] Save All | CLI | Help
Home > SpeedTouch > System Update
System Configuration System Upgrade
Upload File Configuration Files Language Packs
Specify a file to upload:
Browse...
Upload</td></tr>
<tr><td>5</td><td>Click the <b>Configuration Files</b> tab and select the file you want to back up:

[Administrator] Save All | CLI | Help
Home > SpeedTouch > System Update
System Configuration System Upgrade
Upload File Configuration Files Language Packs
Active Configuration — Service
■ user.ini — Routed PPPoE on 0/35 and 8/35
Wizard Template — Service
▸ ppp.tpl — Router
▸ ipoa.tpl — Routed IPoA
▸ bridge.tpl — Bridge
Details:
Configuration/Template properties:
Region: —
Provider: —
Service: Routed PPPoE on 0/35 and 8/35
Description: Factory Defaults
Config Version: 2.0.0
Compatible: Yes
Factory template: No
Backup Delete Cancel</td></tr>
<tr><td>6</td><td>Click <b>Backup</b>.</td></tr>
<tr><td>7</td><td>Select a location on your local disk to store the user.ini file and click <b>OK</b>.</td></tr>
</table>

Don’t click **Delete**, or the SpeedTouch™ will reset to defaults and your configuration will be gone.

Restoring a configuration via the expert pages

Proceed as follows:

Step	Action
1	Open a web browser and go to the SpeedTouch™ Web Interface.
2	Go to **expert mode**.
3	Open the Upgrade page via **Home > SpeedTouch > System Update**:  [Administrator] Save All | CLI | Help Home > SpeedTouch > System Update System Configuration System Upgrade Upload File Configuration Files Language Packs Specify a file to upload: Browse... Upload
4	Click **Browse** to locate the configuration file on your local disk you intend to restore. Select the file and click **OK**.
5	Click **Upload** to transfer the configuration file to the SpeedTouch™.

Be aware that by uploading a new configuration also the IP configuration of the SpeedTouch™ may have been changed. In that case the information logging as described above procedure will not be shown. To save the new configuration, you must browse to the SpeedTouch™ Web Interface using its new IP address, and click **Save All**.

4.2 Configuration Management via Telnet

FTP access

For more information on the file system of the SpeedTouch™ and how to access it via FTP, see “7 The SpeedTouch™ File System” on page 75.

SpeedTouch™ configuration files

The SpeedTouch™’s last saved configuration is stored in the SpeedTouch™ ‘/dl’ subdirectory of the SpeedTouch™ file system.

There may be a user.ini file present in the system’s ‘/active’ subdirectory. However, this user.ini only contains the saved configuration created before your latest software switch-over, and hence may be not up-to-date. Therefore never use this user.ini file for backup reasons.

Full read/write access is only granted in the ‘/dl’ subdirectory.

4.3 The :Config CLI Command Group

Introduction

The config CLI command group allows the management of SpeedTouch™ configurations.

Following CLI commands are available in the config CLI command group:

```
=>:help config
Following commands are available :

save             : Store current configuration to backup file
load             : Load saved or default configuration.
delete           : Delete a user configuration file.
flush            : Flush the loaded configuration.
list             : Show the current configuration set
dump             : Show the saved configuration file

=>
```

:config CLI commands

Below the CLI commands available for SpeedTouch™ configurations are shortly described. For more information, see the “SpeedTouch™ CLI Reference Guide”.

- **`:config save`**
  Allows to save the current configuration of the SpeedTouch™ to a user.ini file in the ‘/dl’ subdirectory
- **`:config backup filename = <user configuration filename>`**
  Allows to save the current configuration of the SpeedTouch™ to a configuration file in the ‘/dl’ subdirectory. You are able to choose a filename of your own choice for the backup file.
- **`:config dump`**
  Allows to view a dump of the stored user.ini file.

Applying a configuration stored on the SpeedTouch™

To activate a configuration file, stored on the SpeedTouch™ '/dl' subdirectory, the CLI command **`:config load`** is used.

Following CLI commands are available in the config load CLI command group:

```
=>:help config load
Load saved or default configuration.
Syntax : load [load_ip = <{disabled|enabled}>]
              [defaults <{disabled|enabled}>] [flush = <{enabled|disabl
ed}>]
              [echo = <{disabled|enabled}>] [filename = <string>]

Parameters :
   [load_ip = <{disabled|enabled}>]
     Load IP settings or not.
   [defaults <{disabled|enabled}>]
     Load default instead of saved configuration.
   [flush = <{enabled|disabled}>]
     Flush current configuration before loading new one.
   [echo = <{disabled|enabled}>]
     Echo each command string when loaded.
   [filename = <string>]
     Configuration filename.
```

Following parameters are available:

- **`load_ip = <{no|yes}>`**
  Allows you to define whether the current IP configuration should be preserved (no), or the IP configuration as defined in the loaded configuration file should be applied (yes). If not specified, load_ip=no.
- **`defaults = <{no|yes}>`**
  Allows you to reset the SpeedTouch™ to its default configuration (yes). If not specified, defaults=no. To restore a configuration file, do not use this parameter.
- **`flush = <{yes|no}>`**
  Allows you to define whether the SpeedTouch™ should flush its current configuration before loading the new one (yes). By default, and if not specified flush = yes, the new loaded configuration is exclusively applied to the SpeedTouch™. If you specify flush = no, the new loaded configuration is appended to the existing current configuration. The latter may result in an unexpected behaviour of the SpeedTouch™.
- **`echo = <{no|yes}>`**
  Allows you to specify whether to echo each command string loaded from the new configuration file (yes) or not (no). If not specified, echo=no.
- **`filename = <string>`**
  Allows you to specify the name of the configuration file to load, in case it is different from user.ini. If not specified, the SpeedTouch™ will assume the file name to be user.ini. It is also possible to load a script file (.sts) with the config load command.

  When loading a config file, the file is loaded to memory. However, to make the configuration persistent you need to click **saveall** to save the configuration.

4.3.1 Back up Configurations via FTP

Introduction

For backup reasons, you can transfer configuration files from both the SpeedTouch™ '/active' and '/dl' subdirectories to your local disk.

Remind that a user.ini file in the system's '/active' subdirectory may contain an old saved configuration created before your latest software switch over.

Backup procedure

To backup the current SpeedTouch™ configuration to your local disk as backup user.ini file, proceed as follows:

Step	Action

1	Open an FTP session to the SpeedTouch™. At the user name prompt, enter a user name and at the password prompt, the password (see "The SpeedTouch™ Multi Level Access Policy Configuration Guide" for more information):
	`C:\>ftp <SpeedTouch™ IP address>`
	`Connected to <SpeedTouch™ IP address>.`
	`220 Inactivity timer = 120 seconds. Use 'site idle <secs>' to change.`
	`User (192.168.1.254:(none)): root`
	`331 SpeedTouch Password required.`
	`Password:`
	`230 OK`
	`ftp>`

2	If required, save the current SpeedTouch™ configuration via the quote site saveall command:

3	`ftp> quote site saveall`
	`200-`
	`200 CLI command "saveall" executed`

4	Enter binary file transfer mode. Optionally you can enable hashing:
	`ftp> bin`
	`200 TYPE is now 8-bit binary`
	`ftp> hash`
	`Hash mark printing On ftp: (2048 bytes/hash mark).`

5	Change to the SpeedTouch™ '/dl' subdirectory from which you want to get the latest configuration file from:
	`ftp>cd dl`
	`250 Changed to /dl`

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td><b>6</b></td><td>

Optionally, you can make a listing of the subdirectory’s contents:

```
ftp> dir
200 Connected to 192.168.1.254
150 Opening data connection for /bin/ls
-rwxrwxrwx   1 0        0        20  Jun 29  1971 start.cmd
-rwxrwxrwx   1 0        0   2952448  Jun 29  1971 ZZUIAA5.314
-r--r--r--   1 0        0         9  Jun 29  1971 seed.dat
-r--r--r--   1 0        0       729  Jun 29  1971 sslcert.pem
-r--r--r--   1 0        0       908  Jun 29  1971 sslkey.pem
-r--r--r--   1 0        0       692  Jun 29  1971 sshdsa.pem
-rwxrwxrwx   1 0        0     66920  Jun 29  1971 user.ini
-rw-rw-rw-   1 0        0      4056  Jun 29  1971 user.tpl
-rw-rw-r--   1 0        0     34633  Jun 29  1971 security.cfg
226 Options: -l : 9 matches total
ftp: 600 bytes received in 0,00Seconds 600000,00Kbytes/
sec.ftp: 400 bytes received in 0.01Seconds 40.00Kbytes/sec.
```

The configuration you saved in step 2 is stored in the **user.ini** file. Other configuration files (stored via the **:config save** and **:config backup** CLI commands) may be found.

</td></tr>
<tr><td><b>7</b></td><td>

Get the configuration file (in the example the saved configuration file user.ini is backed up):

```
ftp> get user.ini
200 Connected to 192.168.1.254 port 1693
150 Opening data connection for user.ini (12016)
#####
226 File transfer complete
ftp: 12016 bytes received in 0.02Seconds 600.80Kbytes/sec.
```

</td></tr>
</table>

As a result the configuration file, containing a saved SpeedTouch™ configuration will be stored on the location from where you started the FTP session.

4.3.2 Store Configurations via FTP

Introduction

Via the procedure described below you can:

- Restore a configuration file you previously backed up via the procedure described in "4.3.1 Back up Configurations via FTP" on page 33.
- Apply a new configuration to the SpeedTouch™ by storing a new or changed configuration file.
- Store multiple SpeedTouch™ configuration and template files on the file system for immediate use.

A configuration file has no limitations regarding the file name to be valid. However, the SpeedTouch™ file system will truncate the full name (including the extension) to maximum 13 characters. For example, when transferring a file "abcdefghijklmnopqrstuvwxyz.ini" to the SpeedTouch™ file system it will be stored as "abcdefghijklm".

For your convenience, it is advised always to use the extension .ini for configuration files.

Each file present in the '/dl' subdirectory of the SpeedTouch™ file system must have a unique file name.

You can use a similar procedure as the one described here to upload and execute script files (.sts)

Restore/change procedure

The procedure to restore or load a new SpeedTouch™ configuration consists of two main steps:

Step	Action
1	Transfer the configuration file to the SpeedTouch™
2	Applying a configuration stored on the SpeedTouch™

Transfer the configuration file to the SpeedTouch™

To transfer a SpeedTouch™ configuration file stored on your local disk to the SpeedTouch™, proceed as follows:

Step	Action
1	Open an FTP session to the SpeedTouch™. At the user name prompt, enter a user name and at the password prompt, the password (refer to “The SpeedTouch™ Multi Level Access Policy Configuration Guide” for more information).

2	If required, save the current SpeedTouch™ configuration via the **`quote site saveall`** command:
	`ftp>` **`quote site saveall`**
	`200-`
	`200 CLI command "saveall" executed`

3	Enter binary file transfer mode. Optionally you can enable hashing:
	`ftp>` **`bin`**
	`200 TYPE is now 8-bit binary`
	`ftp>` **`hash`**
	`Hash mark printing On ftp: (2048 bytes/hash mark).`

4	Go to the SpeedTouch™ **‘/dl’** subdirectory: `ftp> cd dl`

5	You can check whether a **user.ini** configuration file, or other configuration files are stored in the **‘/dl’** subdirectory by making a listing of the subdirectory’s contents:
	`ftp>` **`dir`**
	`200 Connected to 192.168.1.254`
	`150 Opening data connection for /bin/ls`
	`-rwxrwxrwx   1 0     0         20 Jun 29  1971 start.cmd`
	`-rwxrwxrwx   1 0     0    2952448 Jun 29  1971 ZZUIAA5.314`
	`-r--r--r--   1 0     0          9 Jun 29  1971 seed.dat`
	`-r--r--r--   1 0     0      729 Jun 29  1971 sslcert.pem`
	`-r--r--r--   1 0     0      908 Jun 29  1971 sslkey.pem`
	`-r--r--r--   1 0     0      692 Jun 29  1971 sshdsa.pem`
	`-rwxrwxrwx   1 0     0      66920 Jun 29  1971 user.ini`
	`-rw-rw-rw-   1 0     0        4056 Jun 29  1971 user.tpl`
	`-rw-rw-r--   1 0     0      34633 Jun 29  1971 security.cfg`
	`226 Options: -l  : 9 matches total`
	`ftp: 600 bytes received in 0,00Seconds 600000,00Kbytes/`
	`sec.ftp: 400 bytes received in 0.01Seconds 40.00Kbytes/sec.`

6	In case the configuration file you intend to upload has the same name as (one of) the configuration file(s) on the SpeedTouch™ file system (for example user.ini), you must either: - Rename the file name, of the configuration file stored on your local disk - Delete the file from the SpeedTouch™ file system.

7	Optionally you can clean up the SpeedTouch™’s file system via the **`:software cleanup`** CLI command:
	`ftp>` **`quote site software cleanup`**
	`200-`
	`200 CLI command "software cleanup" executed`

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td><b>8</b></td><td>Put the configuration file to the SpeedTouch™ ‘/dl’ subdirectory:
<pre><code>ftp> <b>put config.ini</b>
200 Connected to 192.168.1.254 port 1657
150 Opening data connection for config.ini
##
226 File written successfully
ftp: 4472 bytes sent in 0.02Seconds 223.60Kbytes/sec.
ftp></code></pre></td></tr>
<tr><td><b>9</b></td><td>You can check whether the configuration file was stored successfully by making a listing of the subdirectory’s contents:
<pre><code>ftp> <b>dir</b>
200 Connected to 192.168.1.254
150 Opening data connection for /bin/ls
-rwxrwxrwx 1 0   0   20 Jun 29 1971 start.cmd
-rwxrwxrwx 1 0   0   2952448 Jun 29 1971 ZZUIAA5.314
-r--r--r-- 1 0   0   9 Jun 29 1971 seed.dat
-r--r--r-- 1 0   0   729 Jun 29 1971 sslcert.pem
-r--r--r-- 1 0   0   908 Jun 29 1971 sslkey.pem
-r--r--r-- 1 0   0   692 Jun 29 1971 sshdsa.pem
-rwxrwxrwx 1 0   0   66920 Jun 29 1971 user.ini
-rw-rw-rw- 1 0   0   4056 Jun 29 1971 user.tpl
-rw-rw-r-- 1 0   0   34633 Jun 29 1971 security.cfg
-rw-rw-r-- 1 0   0   44721 Jun 29 1971 config.ini
226 Options: -l : 9 matches total
ftp: 600 bytes received in 0,00Seconds 600000,00Kbytes/
sec.ftp: 400 bytes received in 0.01Seconds 40.00Kbytes/sec.</code></pre></td></tr>
</table>

Applying a configuration stored on the SpeedTouch™

To activate a configuration file, stored on the SpeedTouch™ '/dl' subdirectory, the CLI command **:config load** is used.

Below the syntax of the config load CLI command is provided:

```
=>help config load
Load saved or default configuration.
Syntax : load [load_ip = <{disabled|enabled}>]
              [defaults <{disabled|enabled}>] [flush = <{enabled|disabl
ed}>]
              [echo = <{disabled|enabled}>] [filename = <string>]

Parameters :
   [load_ip = <{disabled|enabled}>]
     Load IP settings or not.
   [defaults <{disabled|enabled}>]
     Load default instead of saved configuration.
   [flush = <{enabled|disabled}>]
     Flush current configuration before loading new one.
   [echo = <{disabled|enabled}>]
     Echo each command string when loaded.
   [filename = <string>]
     Configuration filename.
```

Proceeding from the same FTP session you opened in the previous procedure, enter the **quote site config load** command to load the configuration you previously put on the SpeedTouch™ file system:

```
ftp> quote site config load
200-
200 CLI command "config load" executed
```

For more information on the config load options, see" Applying a configuration stored on the SpeedTouch™" on page 32

In case the file name of the configuration file is different from user.ini, you should specify the file name. This allows you to store multiple configuration files on the SpeedTouch™ file system, and load them when needed:

```
ftp> dir
200 Connected to 192.168.1.254 port 2187
150 Opening data connection for /bin/ls
-rwxrwxrwx   1 0        0              20 Jun 29  1971 start.cmd
-rwxrwxrwx   1 0        0         2952448 Jun 29  1971 ZZUIAA5.314
-r--r--r--   1 0        0               9 Jun 29  1971 seed.dat
-r--r--r--   1 0        0             729 Jun 29  1971 sslcert.pem
-r--r--r--   1 0        0             908 Jun 29  1971 sslkey.pem
-r--r--r--   1 0        0             692 Jun 29  1971 sshdsa.pem
-rwxrwxrwx   1 0        0           66920 Jun 29  1971 user.ini
-rw-rw-rw-   1 0        0            4056 Jun 29  1971 user.tpl
-rw-rw-r--   1 0        0           34633 Jun 29  1971 security.cfg
-rw-rw-r--   1 0        0           44721 Jun 29  1971 config.ini
-rwxrwxrwx   1 0        0           66920 Jun 29  1971 config1.ini
-rw-rw-rw-   1 0        0            4056 Jun 29  1971 config2.tpl
-rw-rw-r--   1 0        0           34633 Jun 29  1971 config3.cfg
-rw-rw-r--   1 0        0           44721 Jun 29  1971 test.ini
226 Options: -l : 11 matches total
ftp: 803 bytes received in 0.10Seconds 8.03Kbytes/sec.
ftp> quote site config load filename=config3.ini
200-
200 CLI command "config load filename=config3.ini" executed
ftp>
```

4.4 SpeedTouch™ Service Templates

Introduction

Template files are ASCII text files consisting of a set of SpeedTouch™ (embedded) Easy Setup wizard specific commands and CLI commands.

Used by the SpeedTouch™ (embedded) Easy Setup wizard, template files allow users to complete the configuration of the device in a convenient and comprehensive way, without the need of manual configuration via CLI or the Web Interface.

Delivered template files

Three template files are by default delivered within the SpeedTouch™ System software for use by means of the embedded Easy Setup wizard:

Template	Description
Bridge	A template to configure the SpeedTouch™ for Bridged Ethernet WAN access (actually as an IEEE802.1D Transparent Bridge). In this template, the DHCP Server has been disabled.
Router	A template to configure the SpeedTouch™ for Routed PPPoE or PPPoA. For the local network the SpeedTouch™ acts as DHCP server.
Routed IPoA	A template to configure the SpeedTouch™ for Routed IP over ATM. For the local network the SpeedTouch™ acts as DHCP server.

Template files on the SpeedTouch™ file system

As the default templates, are embedded in the system software, these template files will not be present in the ‘/dl’, (or ‘/active’) subdirectories by default.

However, via FTP access you are able to upload additional template files from the SpeedTouch™ Setup CD, or custom template files to the SpeedTouch™ ‘/dl’ subdirectory, to extend the diversity of embedded configuration possibilities and/or to avoid the need of using the SpeedTouch™ Home Install Wizard from the CD.

Each time the SpeedTouch™ Home Install Wizard is used to configure the device a ‘backup’ user.tpl file is created/overwritten in the ‘/dl’ subdirectory, for future use by the embedded Easy Setup wizard.

4.5 SpeedTouch™ System Languages Management

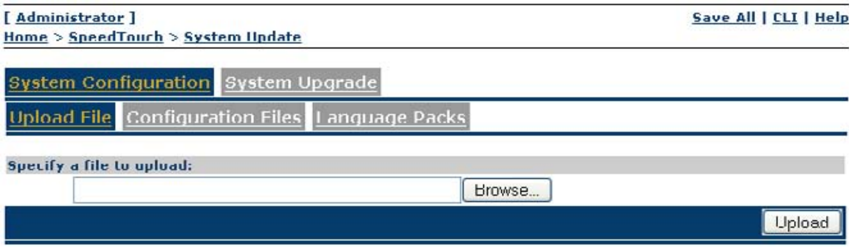
Introduction

The following three actions are possible regarding the system languages.

- Upload a new system language file, which can be found on the SpeedTouch™ Setup CD, to the SpeedTouch™.
- Switch between system languages via the system language bar.
- Delete a system language via the SpeedTouch™ Web Interface.

Uploading a new system language

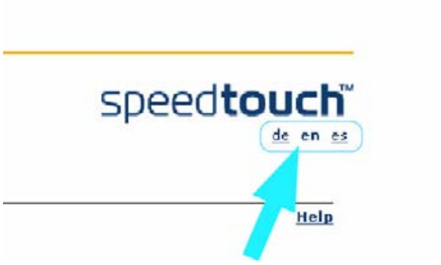
To upload a new system language, proceed as follows:

Step	Action
1	Open a web browser and go to the SpeedTouch™ Web Interface.
2	Go to **Expert Mode**.
3	Open the **Upload File** page via **Home > SpeedTouch > System Update**.  [Administrator] Save All | CLI | Help Home > SpeedTouch > System Update System Configuration | System Upgrade Upload File | Configuration Files | Language Packs Specify a file to upload: Browse... Upload
4	Click **Browse** and select the desired system language from the SpeedTouch™ Setup CD.
5	Click **Upload** to start uploading the system language on to the SpeedTouch™

Switch between system languages

To switch between system languages, select the desired system language in the system language bar.

The system language bar can be found on the top right side of the SpeedTouch™ Web Interface:

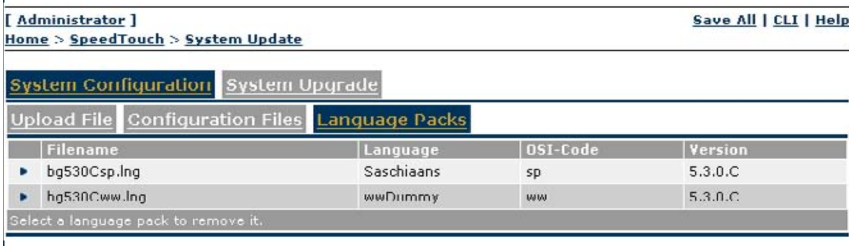


By default, the SpeedTouch™ is shipped with only one language. The system language bar will only be shown in case more than one valid system language is stored on the SpeedTouch™.

The system language packs are **related to the system software versions**!

Delete a system language

Proceed as follows:

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Open a web browser and go to the SpeedTouch™ Web Interface.</td></tr>
<tr><td>2</td><td>Go to the <b>Expert Mode</b>.</td></tr>
<tr><td>3</td><td>Open the language page via <b>Home > SpeedTouch > System Update</b>.</td></tr>
<tr><td>4</td><td>Click on the <b>Language Packs</b> tab:


<table>
<tr><th></th><th>Filename</th><th>Language</th><th>OSI-Code</th><th>Version</th></tr>
<tr><td>▸</td><td>bg530Csp.lng</td><td>Saschiaans</td><td>sp</td><td>5.3.0.C</td></tr>
<tr><td>▸</td><td>bg530Cww.lng</td><td>wwDummy</td><td>ww</td><td>5.3.0.C</td></tr>
</table>
Select a language pack to remove it.</td></tr>
<tr><td>5</td><td>Select the entry at the desired system language and click <b>Delete</b>.</td></tr>
<tr><td>6</td><td>Select <b>Saveall</b> to save your changes.</td></tr>
</table>

5 SpeedTouch™ Software Modules

SpeedTouch™ software module functionality

The SpeedTouch™ comes by default with an extended set of features to provide end-to-end connectivity over the DSL line, IP Routing, RIP, Hyper-NAT, SNMP, Syslog, DHCP, DNS, Remote Assistance, Game & Application Sharing, UPnP, Web Site Filtering, IDS, DSD to name just a few.

The SpeedTouch™ is able to support additional functionality on top of its basic feature set. These additional software modules however, are not enabled by default and must be activated by means of a software activation key.

Overview Software modules

The table below describes the possible Software Modules:

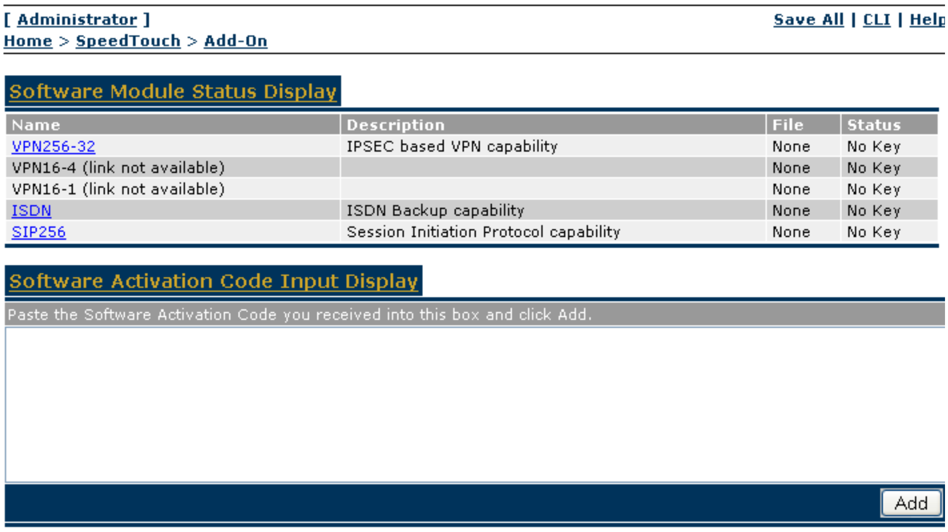
Software Modules	ST620	ST608(WL)	ST605
`IPSec (VPN256-32)`	Software key	-	-
`IPSec (VPN16-4)`	Software key	Software key	-
`IPSec (VPN16-1)`	Software key	Available	-
`ISDN`	Software key	Software key	-
`SIP PBX (SIP256)`	Software key	-	-

By activating the ISDN Software Module, full throughput capability on the ISDN interface will be enabled.

5.1 Software Activation Key Management

The SpeedTouch™ Software Modules web page

Via the SpeedTouch™ web interface you can easily overview the SpeedTouch™ available software activation keys and their current status:



[Administrator] Save All | CLI | Help
Home > SpeedTouch > Add-On

Software Module Status Display

Name	Description	File	Status
VPN256-32	IPSEC based VPN capability	None	No Key
VPN16-4 (link not available)		None	No Key
VPN16-1 (link not available)		None	No Key
ISDN	ISDN Backup capability	None	No Key
SIP256	Session Initiation Protocol capability	None	No Key

Software Activation Code Input Display

Paste the Software Activation Code you received into this box and click Add.

The Software Module Status Display shows the available software modules that can be activated via a software activation key.

For each software module, following information is provided:

Table Item	Description
Name	The name of the software module. The name also serves as an Internet link to the SpeedTouch™ software module server from which you can acquire a software activation key for the particular software module.
Description	Describes the software module.
File	In case the software module is enabled, the software key's file name is displayed.
Status	Indicates the status of the module: ▸ No key Meaning that the software module is not enabled. ▸ Key enabled Meaning that the software module is enabled.

How to Access the Software Modules Page

In expert mode, go to SpeedTouch™ **> Addon**.

Software activation key management via the CLI

You can overview the software modules and their status and link information via the SpeedTouch™ Command Line Interface (CLI).

See “2 SpeedTouch™ Command Line Interface” on page 5 for more information on how to access the Command Line Interface.

The **:software addon list** CLI command group allows you to overview the current software modules, their status, and some additional information:

```
=>:software addon list

VPN256-32 module info :
        Software key status : No Key
        Filename :
        Link : http://www.speedtouch.com/homeprod/addon.htm
        Teaser : IPSec based VPN (256 Sessions, 32 Profiles)

VPN16-4 module info :
        Software key status : No Key
        Filename :
        Link : http://www.speedtouch.com/homeprod/addon.htm
        Teaser : IPSec based VPN (16 Sessions, 4 Profiles)

VPN16-1 module info :
        Software key status : No Key
        Filename :
        Link : http://www.speedtouch.com/homeprod/addon.htm
        Teaser : IPSec based VPN (16 Sessions, 1 Profile)

ISDN module info :
        Software key status : No Key
        Filename :
        Link : http://www.speedtouch.com/homeprod/addon.htm
        Teaser : ISDN Backup

SIP256 module info :
        Software key status : No Key
        Filename :
        Link : http://www.speedtouch.com/homeprod/addon.htm
        Teaser : SIP PBX (256 User Agents)
```

To allow for a successful activation of software modules no parts of the :**software addon** CLI command group should be changed, unless specifically instructed by your Service Provider.

Applying for a software key

Contact your local product dealer for available software module activation possibilities.

How to Install a Software Key

After applying for a software key, your ISP should provide you with a software key user name and password. Proceed as follows to install and activate the software key via the GUI:

Step	Action
1	Go to the software modules page. Refer to How to Access the Software Modules Page.
2	Click on the software module you want to activate. You are taken to the software key request page.
3	Enter the user name and password you received and click **Request Software Key**. You will receive the software key.
4	Copy the text of the software key, and paste it into the provided window on the Software modules page.
5	Click **Add**.

The user name and password remain active. If for some reason, your software keys are lost, proceed as described above to reactivate them.

How to Back Up the Software Keys

Normally, you do not need to backup the software keys; However, should you want to do so, use ftp to transfer the software key files (.swk) to a backup location.

Disabling software modules on the SpeedTouch™

Under normal conditions, once a software module has been activated, there is no reason to disable this software module again.

However, via an FTP session to the SpeedTouch™ file system you are able to create a backup of software activation keys (files with an extension .swk, stored on the SpeedTouch™ '/dl' subdirectory), delete keys and/or restore them.

Be aware that due to a previous system software update software keys may be residing in the SpeedTouch™ '/active' directory. If so, and you want to remove these software keys in order to prevent them to re-activate a software module in a future system software upgrade, follow the instructions below:

1. Make sure to save your current SpeedTouch™ configuration via the `:saveall` CLI command.
2. Make sure that both the active and passive system software are the same. This can be done via the `:software duplicate` CLI command.
3. Switch active and passive system software versions via the `:software switch` CLI command.
4. After restart, remove the software keys (now residing in the 'dl' directory) via an FTP session.

For more information on System software upgrades and management, see "3 SpeedTouch™ System Software" on page 15. For information on SpeedTouch™ FTP access see "7 The SpeedTouch™ File System" on page 75.

6 SpeedTouch™ System Services

Overview

This chapter covers the following services:

Service	See
Dynamic DNS	6.1
Simple Network Time Protocol (SNTP)	6.2
Website Filtering	6.3
Intrusion Detection	6.4
Remote Assistance	6.5

6.1 SpeedTouch™ Dynamic DNS

Introduction

Dynamic DNS is a mechanism, offered by several dynamic DNS service providers (available through the Internet) that allows the mapping of a worldwide resolvable static DNS host name to a dynamically (and temporarily) assigned public IP address used for Internet connectivity.

This allows you to offer basic Internet services to the world wide web, through a DNS host name, without the need for obtaining a static and worldwide unique public IP address.

In most cases dynamic DNS service providers offer various host applications, which run in background on a local computer and send IP address updates to a dynamic DNS service server whenever the dynamically assigned public IP address has been changed.

The SpeedTouch™ offers you an embedded dynamic DNS client, making the use of third party host applications running on a local computer superfluous.

Applying for the dynamic DNS service

Before you are able to use the SpeedTouch™ dynamic DNS client functionality, you must first apply for a dynamic DNS account (and DNS host name) at one of the available dynamic DNS service providers available on the Internet.

The SpeedTouch™ supports by default the following dynamic DNS service providers:

- DynDNS (www.dyndns.org/services/dyndns/)
- StatDNS (www.dyndns.org/services/statdns/)
- No-IP (www.no-ip.com)
- DtDNS (www.dtdns.com)
- GnuDIP

Dynamic DNS client configuration

The SpeedTouch™ dynamic DNS client service can be configured via the CLI or the SpeedTouch™ Web Interface.

Below a short description on how to prepare your SpeedTouch™ for dynamic DNS, using an imaginary account at the DynDNS dynamic DNS service provider using the CLI interface.

For more in-depth information on the CLI, see "2 SpeedTouch™ Command Line Interface" on page 5 and the "SpeedTouch™ CLI Reference Guide".

Preparing the SpeedTouch™ dynamic DNS client

The procedure for enabling a dynamic DNS client consists of five steps:

1. Adding a dynamic DNS host name
2. Adding a dynamic DNS client
3. Modifying the dynamic DNS client
4. Refining the dynamic DNS service settings (optional)
5. Enabling the Dynamic DNS Service.

In a preliminary step, it is assumed that the SpeedTouch™ is already correctly configured for your Internet subscription and connected to the Internet, and that you have obtained a valid dynamic DNS account (and DNS host name) at a dynamic DNS service provider (in this example DynDNS).

The SpeedTouch™ CLI dyndns commands

The SpeedTouch™ allows configuration of its dynamic DNS client functionality via the :dyndns CLI command group:

```
=>:dyndns help
Following commands are available :

add              : Add a Dynamic DNS client.
modify           : Modify a Dynamic DNS client.
delete           : Delete a Dynamic DNS client.
flush            : Delete all Dynamic DNS clients.
list             : List all Dynamic DNS clients.

Following command groups are available :

host            service

=>
```

In this command group all commands are available for adding/deleting and configuring a dynamic DNS client.

It contains also two sub command groups:

- **:dyndns host**

```
=>:dyndns host help
Following commands are available :

add              : Add a fully qualified host name
delete           : Delete a host name
flush            : Delete all host names
list             : List all host names

=>
```

This allows to specify one or more host name(s) corresponding to a dynamic DNS client.

- **:dyndns service**

```
[dyndns]=>:dyndns service help
Following commands are available :

modify           : Modify specific DynDNS service settings
list             : List all DynDNS services

=>
```

This allows you to view/configure the pre-configured dynamic DNS service providers, or to create custom dynamic DNS service providers.

For a full description of the syntax of these commands, see the “SpeedTouch™ CLI Reference Guide”.

Example dynamic DNS subscription

For this example, following dynamic DNS subscription is assumed at DynDNS (www.dyndns.org):

	value
user name	JohnDoe@MyISP.com
password	john
Dynamic DNS host	johndoe.dyndns.org
Allow wildcards	yes

Depending on your dynamic DNS subscription some other, more advanced options may be required or available, e.g. multiple host names, the Mail Exchanger (MX) host name, update interval, etc.

Adding a dynamic DNS host name

In a first step you must specify for which hostname(s) you want to enable the dynamic DNS service for. According to the Example dynamic DNS subscription information, following configuration must be done:

```
=>:dyndns host add group=MyDynDNSHost name=johndoe.dyndns.org
```

To allow multiple host names to be assigned to the same dynamic DNS service, host names always reside in a group. You are free to choose a group name, it is only used for referring to the group during CLI configuration.

Adding a dynamic DNS client

Add a dynamic DNS client entry:

```
=>:dyndns add name=MyDynDNS
```

Modifying the dynamic DNS client

Now the dynamic DNS client must be configured according your dynamic DNS subscription. According the Example dynamic DNS subscription information, following configuration must be done:

```
=>:dyndns modify
name = MyDynDNS
[intf] = PPPoE_1
[user] = JohnDoe@MyISP.com
[password] = ****         First time typing the password
Please retype password for verification.
[password] = ****         Second time typing the password for
verification
[group] = MyDynDNSHost
[mx] =                    Left empty
[backmx] = disabled
[wildcard] = enabled
[offline] = disabled
[service] =dyndns
[status] = disabled
:dyndns modify name=MyDynDNS intf=DIALUP_PPPOE user=JohnDoe@MyISP.com
   password=_DEV_2AF11E9E944667D4 group=MyDynDNSHost
```

The [intf] parameter requires you to select the SpeedTouch™ interface used for your Internet connectivity.

Refining the dynamic DNS service settings

If needed or required by the dynamic DNS service provider, you can change some details of the dynamic DNS service.

The Example dynamic DNS subscription at DynDNS requires no changes in the service settings, as the pre-configured settings should be adequate.

Below an overview of the default service settings per pre-configured dynamic DNS service provider (and the custom dynamic DNS service):

```
=>:dyndns service list
dyndns    :
    server          = members.dyndns.org
    port            = 80
    request         = /nic/update
    update interval = 2097120s
    retry interval  = 30s
    max retry       = 3

statdns   :
    server          = members.dyndns.org
    port            = 80
    request         = /nic/update
    update interval = 0s
    retry interval  = 30s
    max retry       = 3

custom    :
    server          = members.dyndns.org
    port            = 80
    request         = /nic/update
    update interval = 0s
    retry interval  = 30s
    max retry       = 3

No-IP     :
    server          = dynupdate.no-ip.com
    port            = 80
    request         = /ducupdate.php
    update interval = 86400s
    retry interval  = 30s
    max retry       = 3

DtDNS     :
    server          = dtdns.com
    port            = 80
    request         = /api/autodns.cfm
    update interval = 86400s
    retry interval  = 30s
    max retry       = 3

gnudip    :
    server          =
    port            = 80
    request         =
    update interval = 0s
    retry interval  = 0s
    max retry       = 0
```

Enabling the Dynamic DNS Service

In a final step you must enable the dynamic DNS client:

```
=>:dyndns modify name=MyDynDNS status=enabled
```

Checking dynamic DNS client Resolving

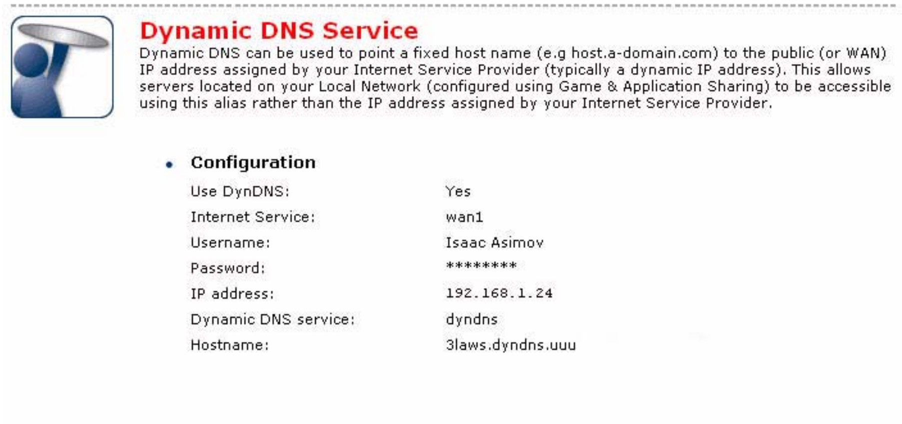
You can easily check whether the dynamic DNS client is successfully updating the SpeedTouch™ public IP address towards the dynamic DNS service provider's hostserver:

```
=>:dyndns list
MyDynDNS : PPPoE_1 [CONNECTED]
    options = dyndns wildcard
    user = JohnDoe@MyISP.com password = ********
    addr = 141.11.1.1
    group = MyDynDNSHost
```

The Dynamic DNS Web Page

The Basic Web interface has a page on Dynamic DNS. To access this page, go to: **Basic mode > Toolbox >Dynamic DNS**

This page shows the Dynamic DNS settings:



Dynamic DNS Service

Dynamic DNS can be used to point a fixed host name (e.g host.a-domain.com) to the public (or WAN) IP address assigned by your Internet Service Provider (typically a dynamic IP address). This allows servers located on your Local Network (configured using Game & Application Sharing) to be accessible using this alias rather than the IP address assigned by your Internet Service Provider.

- Configuration

Use DynDNS:	Yes
Internet Service:	wan1
Username:	Isaac Asimov
Password:	********
IP address:	192.168.1.24
Dynamic DNS service:	dyndns
Hostname:	3laws.dyndns.uuu

To change the settings and enable/disable Dynamic dns, click **configure**.

This page allows you to perform the following tasks:

- **Use dynamic DNS on multiple interfaces:** configure an additional interface.
- **Use multiple hosts:** configure an additional host.

6.2 The SpeedTouch™ SNTP Client

Introduction

The SpeedTouch™ Simple Network Time Protocol (SNTP) client allows you to configure the SpeedTouch™ internal real-time clock (RTC), used for time-critical operations, for example for online certificates enrolment (IPSec VPN client).

This section shortly describes the configuration and use of the SpeedTouch™ SNTP client.

Daylight Saving Time

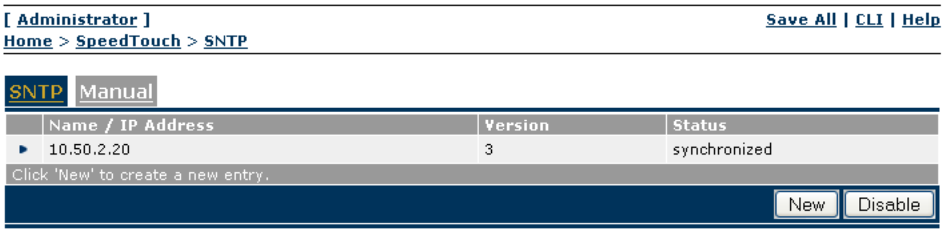
Because the RTC does not have an automatic daylight saving switch, you should update it manually at the correct moments (twice a year).

The RTC

The SpeedTouch™ contains a battery to allow the RTC to maintain the time even when the device is powered off and restarts. This helps security because even when the NTP servers are temporarily inaccessible because of a power outage or network traffic overflow, the SpeedTouch™ has the correct time allowing to correctly correlate syslog events from various devices and perform correct diagnosis.

The SNTP web page

You can access the SpeedTouch™ SNTP page via **Home > SpeedTouch > SNTP**:



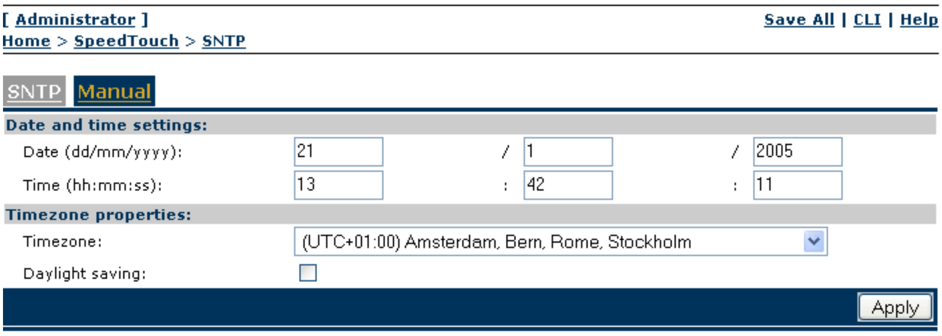
	Name / IP Address	Version	Status
▸	10.50.2.20	3	synchronized

Click 'New' to create a new entry.

By default SNTP is disabled; internal clocking refers to the SpeedTouch™ up time (i.e. the time passed since last reboot).

The Manual tab

Select **Manual** to:



[Administrator]

Save All | CLI | Help

Home > SpeedTouch > SNTP

Date and time settings:

Date (dd/mm/yyyy): 21 / 1 / 2005

Time (hh:mm:ss): 13 : 42 : 11

Timezone properties:

Timezone: (UTC+01:00) Amsterdam, Bern, Rome, Stockholm

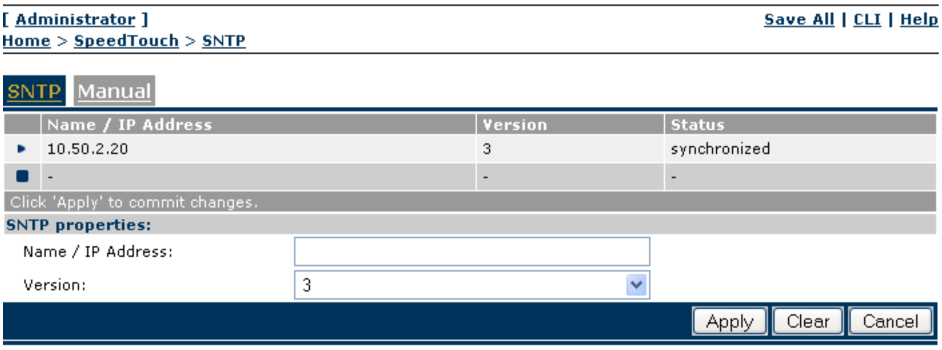
Daylight saving: □

- Set a date manually. (format dd/mm/yyyy)
- Set a time manually. (format HH:mm:ss)
- Select a geographical timezone. (from GMT-12:00 to GMT+12:00)
- Enable or disable summertime.

The Manual TAB, if selected, disables the SpeedTouch™ SNTP client

The SNTP tab

To enable the SpeedTouch™ SNTP client, select the **SNTP** TAB:



	Name / IP Address	Version	Status
▸	10.50.2.20	3	synchronized
■	-	-	-

Click 'Apply' to commit changes.

SNTP properties:

Name / IP Address:

Version: 3

As long no NTP servers are configured, time will not be controlled by SNTP.

Proceed as follows to add an NTP server:

Step	Action
1	Click **New**.
2	Enter the IP address or DNS hostname of an NTP server.
3	Specify the NTP version of the server.
4	Click **Apply**. This enables the SNTP client, which contacts the NTP server, in order to synchronize the SpeedTouch™ internal clock with the NTP server. If needed, you can correct the synchronized time by selecting your geographical timezone, optionally by enabling or disabling summertime

From now on, your SpeedTouch™'s internal clock will be synchronized every 5 minutes (default setting) with the NTP server.

If needed you can enter additional redundant NTP servers to ensure that the clock always is synchronized with at least one of the provided NTP servers.

Setting the time via CLI

The **:system rtc settime** CLI command allows you to overview the current real-time clock settings and to configure them:

```
=>:system rtc settime
date = 04/07/2003
time = 10:34:55
timezone = +01:00
daylightsaving = off
=>
```

You can also use this CLI command to manually set the SpeedTouch™ internal real-time clock:

```
=>:help system rtc settime
Set/Get date, time, timezone, daylight savings time
Syntax : settime [date = <dd/mm/yyyy>] [time = <hh:mm:ss>]
                 [timezone = <(+ or -)hh:mm>]
                 [daylightsaving = <{disabled|enabled}>]

Parameters :
   [date = <dd/mm/yyyy>]
     Set the system date
   [time = <hh:mm:ss>]
     Set the system time
   [timezone = <(+ or -)hh:mm>]
     Set the system timezone(-12:00...+14:00 / 15 minute resolution)
   [daylightsaving = <{disabled|enabled}>]
     Enable/Disable daylight saving
```

SNTP via the CLI

The SpeedTouch™ SNTP client is configured via the **:sntp** CLI command group:

```
=>:sntp help
Following commands are available :

add                : Add NTP server
list               : List the NTP servers
delete             : Delete NTP server from list
flush              : Flush NTP server list and SNTP client configuration
config             : Modify/Display configuration
```

You can use the following commands:

- **:sntp list**
  List the configured NTP servers.
- **:sntp add and :sntp delete**
  Add or delete NTP servers.
- **:sntp config**
  Enable/disable the SpeedTouch™ SNTP client and set the polling interval.

6.3 Website Filtering

About Website Filtering

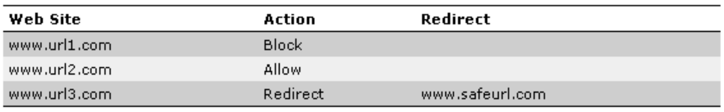
The website filtering feature offers you the possibility to control Internet Access by filtering blocking access to certain websites. The SpeedTouch™ has two methods of controlling access to the Internet:

Method	Description
Address Based Filtering	Allow or block access to specific sites based on their address.
Content Based Filtering	Allow or block access to websites based on their content.

Address Based Filtering

With address based filtering, you can allow or block access to specific web sites based on their address. You can also block access to a specific site and redirect the browser to another site.

You can do this by configuring an address filter similar to this example:



Web Site	Action	Redirect
www.url1.com	Block	
www.url2.com	Allow	
www.url3.com	Redirect	www.safeurl.com

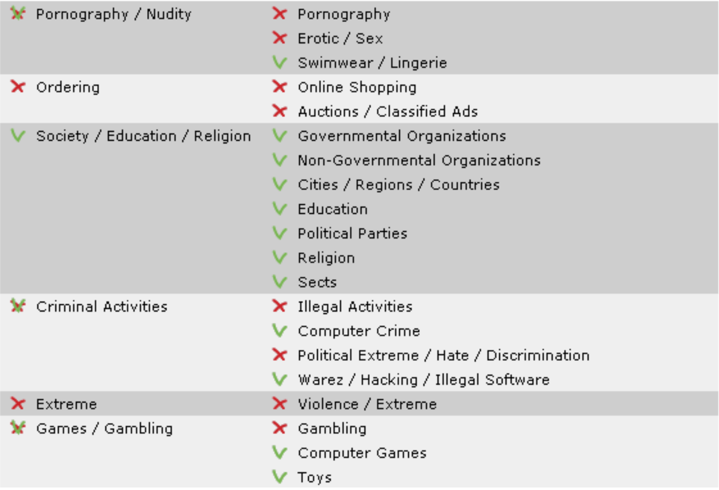
If you create a rule for a specific URL, that rule also applies to child URLs, unless otherwise specified in the filter.

Example:

Any rule created for **www.Speedtouch.com** also applies to **<anything>.speedtouch.com**.

Content Based Filtering

With content based filtering, you can block or allow access to web sites based on their content. To do this, you can apply a content level as filter. You can use (an, if necessary, customize) one of the predefined content levels or create your own. The following is an example of (part of) a content level:



✗✓ Pornography / Nudity	✗ Pornography
	✗ Erotic / Sex
	✓ Swimwear / Lingerie
✗ Ordering	✗ Online Shopping
	✗ Auctions / Classified Ads
✓ Society / Education / Religion	✓ Governmental Organizations
	✓ Non-Governmental Organizations
	✓ Cities / Regions / Countries
	✓ Education
	✓ Political Parties
	✓ Religion
	✓ Sects
✗✓ Criminal Activities	✗ Illegal Activities
	✓ Computer Crime
	✗ Political Extreme / Hate / Discrimination
	✓ Warez / Hacking / Illegal Software
✗ Extreme	✗ Violence / Extreme
✗✓ Games / Gambling	✗ Gambling
	✓ Computer Games
	✓ Toys

Note that “x” marks forbidden content while “v” marks allowed content.

Overview

This section covers the following topics:

Section	See Page
“6.3.1 The Website Filtering Configuration Pages”	62
“6.3.2 How to Verify the Filtering Configuration”	63
“6.3.4 Configuring the Actions for Uncategorised Sites”	66
“6.3.5 How to Create an Address Based Filter”	67
“6.3.6 How to Create a Content Based Filter”	68
“6.3.7 How to Create a Content Level”	69

6.3.1 The Website Filtering Configuration Pages

Page Overview

The website filtering section of the SpeedTouch™ web interface offers three pages:

Page	Description
Overview	Allows you to view the filtering configuration
Configure	Allows you to configure website filtering
Help	Provides online help on Website filtering

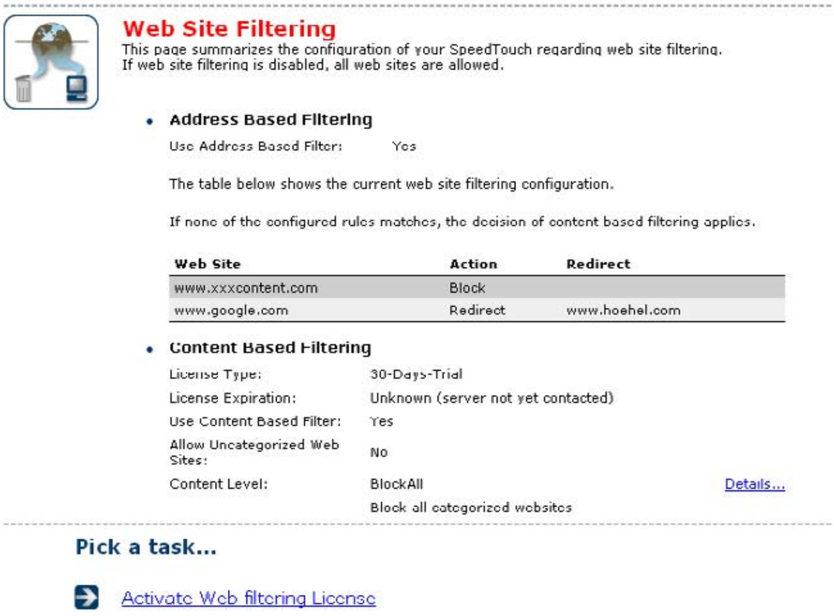
6.3.2 How to Verify the Filtering Configuration

Procedure

Proceed as follows to verify the website filtering configuration:

Step	Action
1	Go to the SpeedTouch™ configuration home page
2	In the Toolbox section, click **Web Site filtering.**

Result: you are taken to the website filtering **overview** page:



Web Site Filtering

This page summarizes the configuration of your SpeedTouch regarding web site filtering.
If web site filtering is disabled, all web sites are allowed.

- Address Based Filtering

Use Address Based Filter: Yes

The table below shows the current web site filtering configuration.

If none of the configured rules matches, the decision of content based filtering applies.

Web Site	Action	Redirect
www.xxxcontent.com	Block	
www.google.com	Redirect	www.hoehel.com

- Content Based Filtering

License Type:	30-Days-Trial
License Expiration:	Unknown (server not yet contacted)
Use Content Based Filter:	Yes
Allow Uncategorized Web Sites:	No
Content Level:	BlockAll Block all categorized websites

The Website Filtering Web page

This page has two sections:

Section	Description
Filtering Information	This section provides information on the active filtering configuration: - Address based filtering information: a list of all specified websites and the actions to be taken. - Content based filtering information: license information and information about the active content level. ***Note:*** to view more detailed information on the content level, click **Details...**
Pick a task	List of possible tasks. In this case, any **Activate Web filtering license** is available. Note: after activating the license, a new task Create a new content level becomes available. Refer to "6.3.3 How to Activate a Web Filtering License" on page 65 for more information.

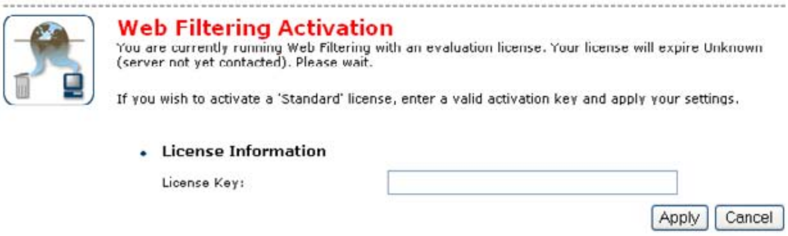
6.3.3 How to Activate a Web Filtering License

Prerequisite

Before you can activate the web site filtering license, you need a valid license key.

Procedure

Proceed as follows to activate a web filtering license:

Step	Action
1	Go to the SpeedTouch™ configuration home page
2	In the Toolbox section, click **Web Site filtering**. Result: you are taken to the website filtering overview page
3	In the **Pick a task...** section, click **Activate Web filtering license**. ***Result:*** the Web filtering activation page appears:  Web Filtering Activation You are currently running Web Filtering with an evaluation license. Your license will expire Unknown (server not yet contacted). Please wait. If you wish to activate a 'Standard' license, enter a valid activation key and apply your settings. • License Information License Key:
4	Fill in a valid license key and click **Apply**.

Once you have activated the license, the **Create New Content Level** task becomes available in the **Pick a Task** section of the filtering configuration pages.

6.3.4 Configuring the Actions for Uncategorised Sites

Filter Priority

The address based filter, if activated, has the highest priority. For web sites that are not specified in the address based filter, the system uses the Content based filter (if activated). If neither filter is activated, no filtering is applied.

Actions for Uncategorised Sites

Uncategorised sites are sites that are not targeted by any of the active filters. For these sites, you can:

- allow access
- block access

Procedure

Proceed as follows to set the actions for uncategorised sites:

Step	Action
1	Go to the SpeedTouch™ configuration home page
2	In the Toolbox section, click **Web Site filtering**.
3	In the top right corner, click **Configure**.
4	Go to the second bullet in the list (**Content Based Filtering**).
5	In the drop down list next to the option **Action for uncategorised sites**, select the desired action (**Block** or **Allow**).
6	Click **Apply**.

6.3.5 How to Create an Address Based Filter

How to Create a New Entry

Proceed as follows:

Step	Action
1	Go to the SpeedTouch™ configuration home page
2	In the Toolbox section, click **Web Site filtering**.
3	In the top right corner, click **Configure**.
4	Go to the first bullet in the list (**Address Based Filtering**).
5	In the last row of the table, enter the URL of the web site for which you want to create an entry in the filter
6	Select the action to be taken (**Block**, **Allow** or **Redirect**) In case of **Redirect**, enter the address to which you want to redirect.
7	Click Add
8	Repeat steps 5 to 7 for each entry you want to create in the filtering table.
9	If necessary, select **Use Address Based Filter** and click **Apply**.

How to Modify an Entry

Proceed as follows to modify an entry in the filter table:

Step	Action
1	Go to the row you wish to change and click the corresponding **Edit**.
2	Modify the entry and click **Apply**. To undo the changes, click **Cancel**.

How to Delete an Entry

Proceed as follows to delete an entry in the filter table:

Step	Action
1	Go to the row you wish to delete
2	Click the corresponding **Delete**.

6.3.6 How to Create a Content Based Filter

About Content Levels

Content levels determine which web sites will be targeted by the filter, based on their content.

There are 5 pre-defined content levels:

Level	Description
All	Allow all categorized web sites.
Legal	Allow all except illegal, extreme, spam and spyware websites.
Teenagers	Block illegal, adult, extreme, online ordering & gambling and spyware websites.
Children	Allow only children-safe websites.
BlockAll	Block all categorized web sites.

Procedure

Proceed as follows to create a content based filter:

Step	Action
1	Go to the SpeedTouch™ configuration home page
2	In the Toolbox section, click **Web Site filtering**.
3	In the top right corner, click **Configure**.
4	Go to the second bullet in the list (**Content Based Filtering**)
5	If not already set, select the desired action for uncategorised sites.
6	If necessary, create a new content level, or modify an existing one.
7	Select the content level of your choice.
8	Repeat steps 5 to 7 for each entry you want to create in the filtering table.
9	Click **Apply**.

6.3.7 How to Create a Content Level

How to get a Detailed View

Proceeds as follows to get a detailed view of an content level:

Step	Action
1	Go to the Web site filtering **Overview** page. ***Result:*** The Web interface shows a description of the content level as well as full details on which type of content is allowed and which is not.
2	Click on **Details...**

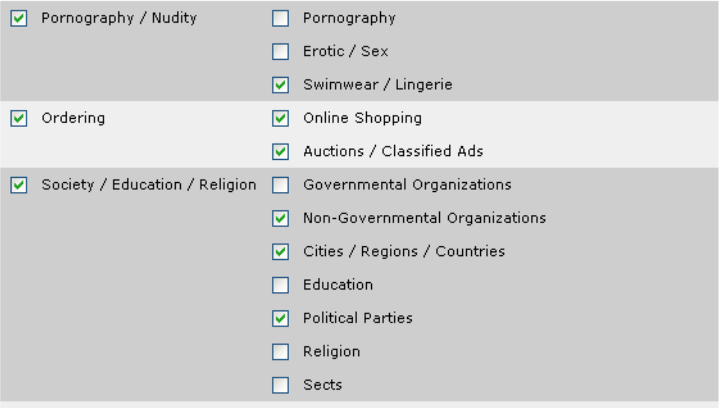
How to Edit a Content Level

Proceed as follows to edit an existing Content Level:

Step	Action
1	Go to the Web site filtering **Overview** page.
2	Select the content level you wish to edit and click the corresponding **Edit**.
3	Modify the name, description and/or the content classes or subclasses targeted by the filter. To select or de-select a content class or subclass, click its checkbox.
4	Click **Apply**.

How to Create a New Content Level

Proceed as follows to create a new content level:

Step	Action
1	Go to the Web site filtering **Configure** page
2	In the **Pick a Task...** list, select **Create a new content level.**
3	Fill in a name and a description and click Next
4	If you want to: Start from a copy of an existing level, select **Clone an Existing Level.** Start from a white list (everything blocked, leaving you to determine which categories are to be allowed), select **White List**. Start from a black list (everything allowed, leaving you to determine which categories are to be blocked), select **Black List**.
5	Click **Next**.
6	Select or de-select the content classes and subclasses you want to include or exclude. Note that if you select a class, all subclasses in that class are automatically included, unless you select at least one subclass. In that case, only the selected subclasses are included. ***Example:***  ☑ Pornography / Nudity — □ Pornography □ Erotic / Sex ☑ Swimwear / Lingerie ☑ Ordering — ☑ Online Shopping ☑ Auctions / Classified Ads ☑ Society / Education / Religion — □ Governmental Organizations ☑ Non-Governmental Organizations ☑ Cities / Regions / Countries □ Education ☑ Political Parties □ Religion □ Sects If the filter is set to allow the sites targeted by the filter, the above example will allow the following sites: ▸ Sites related to swimwear or lingerie, but no other nudity related sites ▸ No sites in the Ordering class ▸ In the Society/Education/Religion class, only sites related to Non-governmental organizations, Cities/Regions and Countries and political parties.
7	**8** Click **Apply**.

6.4 Intrusion Detection and Protection

About Intrusion Detection

The SpeedTouch™ actively protects your system against malicious intrusion. You can view statistics on the intrusion attempts the SpeedTouch™ has detected.

How to View the Intrusion Detection statistics

Proceed as follows to see the intrusion statistics:

Step	Action
1	Go to the Basic configuration home page of the web interface
2	In the **Toolbox** section, click **Intrusion Detection** ***Result:*** the Web Interface shows you a list of all possible intrusions and the number of times each intrusion actually occurred.

Possible Tasks

The Intrusion Detection page also shows a ***Pick Task...*** section which has two possible tasks:

Task	Description
View the security logs	View the security logs for more information about the intrusion.
Clear intrusion detection statistics	Clears the intrusion detection statistics and resets all counters to zero.

To execute a task, simply click it in the **Pick a Task**... section.

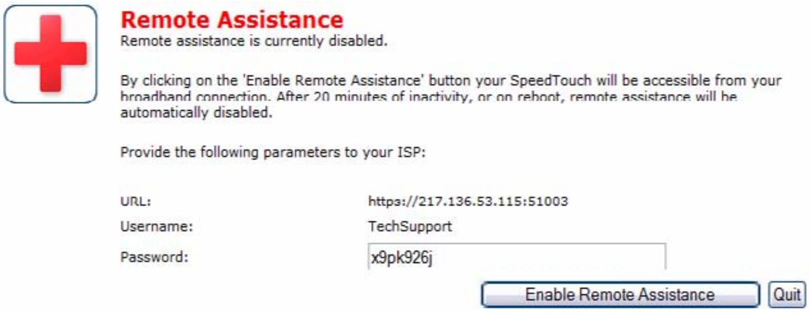
6.5 Remote Assistance

About Remote Assistance

Remote Assistance allows you to log on to the SpeedTouch™ from a remote location and perform tasks.

How to Set Up Remote Assistance

Proceed as follows to set up Remote Assistance:

Step	Action
1	Go to the Basic configuration home page of the web interface
2	In the **Toolbox** section, click **Remote Assistance** ***Result:*** the Web Interface shows the following page:  **Remote Assistance** Remote assistance is currently disabled. By clicking on the 'Enable Remote Assistance' button your SpeedTouch will be accessible from your broadband connection. After 20 minutes of inactivity, or on reboot, remote assistance will be automatically disabled. Provide the following parameters to your ISP: URL: https://217.136.53.115:51003 Username: TechSupport Password: x9pk926j The system selects the user with the **defremadmin** property set to **enabled**. The SpeedTouch™has a pre-configured user called **TechSupport** already configured for this purpose. Normally, the page should show this user (see example above). The system also generates a random password, which you can alter manually.
3	Click **Enable Remote Assistance**. Note that the system generates a new password every time you click the enable button.

How to Log On To The SpeedTouch™ Remotely

Proceed as follows to log on to the SpeedTouch™ remotely:

Step	Action
1	Open a browser window
2	Enter the URL of the SpeedTouch™ (public IP address of the SpeedTouch™ with port number 51003, as shown on the **Remote Assistance** page).
3	Log on using the user and the password on the **Remote Assistance** page.

You are now remotely connected to the SpeedTouch™ and have access to all of its functions, as if the connection were a local connection.

Connection Type

On most variants, the connection will be HTTPS (secure HTTP). However, some variants do not support SSH and will therefore use an HTTP connection;

7 The SpeedTouch™ File System

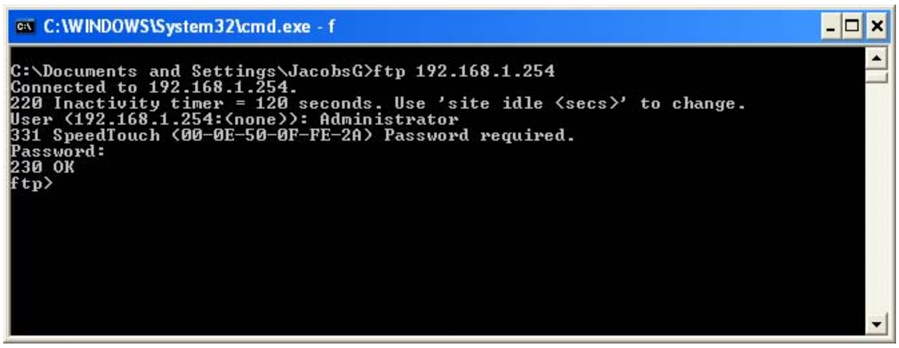
Introduction

The SpeedTouch™ file system exists of nonvolatile memory responsible for storing, retrieving and maintaining the system software files, configuration profile files, language-pack files, software activation keys, secure storage files, etc.

The file system of the SpeedTouch™ is accessible via the well known File Transfer Protocol (FTP). This allows to backup and restore files present on the SpeedTouch™ file system. Moreover, via FTP's **`quote site`** command you are able to use a limited set of CLI commands from the FTP prompt.

Opening an FTP session to the SpeedTouch™

Proceed as follows to open an FTP session to the SpeedTouch™ file system (the example shows an ftp session opened from an MS Windows Command Prompt):



```
C:\Documents and Settings\JacobsG>ftp 192.168.1.254
Connected to 192.168.1.254.
220 Inactivity timer = 120 seconds. Use 'site idle <secs>' to change.
User (192.168.1.254:(none)): Administrator
331 SpeedTouch (00-0E-50-0F-FE-2A) Password required.
Password:
230 OK
ftp>
```

In the example above the default SpeedTouch™ IP address 192.168.1.254 is assumed, however another IP address may be assigned to your SpeedTouch™ device.

In its default firewall configuration, FTP access to the SpeedTouch™ file system is restricted to access from the local network only.

File system structure

The file system features a tiny multilevel directory structure with two nodes '/active' and '/dl'.

The root directory is secured and contains two subdirectories '/active' and '/dl'.

The '/active' subdirectory contains the system software in execution. Other files may be present to ensure the good operation of the device, or due to previous system software upgrades.

The '/dl' subdirectory is the directory where you can find a user.ini file, holding the most recently saved SpeedTouch™ configuration. The '/dl' subdirectory also contains the passive (dormant) system software (in most cases the passive system software will be the same as the active system software present the '/active' subdirectory. Optionally, the '/dl' subdirectory may contain software activation keys for enabling SpeedTouch™ software modules, language pack files and template files. Other files may be present as well to ensure the good operation of the device.

There may be a user.ini file present in the '/active' subdirectory. However, this user.ini only contains the saved configuration since the last software switchover, and hence may be not up-to-date.

Access rights to the file system

Following access/action rights apply to the directories and its contents:

- 'root' Directory
  - Access is allowed
  - No Read access
  - No Write access
- '/active' Subdirectory
  - Access is allowed
  - Listing of files (dir)
  - FTP (m)get of (multiple) files
- '/dl' Subdirectory
  - Access is allowed
  - Listing of files (dir)
  - FTP (m)get of (multiple) files
  - FTP (m)put of (multiple) files
  - FTP (m)delete of (multiple) files

Preparing for FTP file transfers

To allow correct file transfers the transfer mode must be set to "binary".

You can turn on the hashing option. This allows you to see the file transfer in progress, by printing a mark for each 2048 bytes that have been transferred:

```
ftp> bin
200 TYPE is now 8-bit binary
ftp> hash
Hash mark printing On ftp: (2048 bytes/hash mark) .
ftp>
```

Files stored on the file system

The following is an example output of the SpeedTouch™ ‘/dl’ and ‘/active’ subdirectory content:

```
C:\Documents and Settings\john_doe>ftp 192.168.1.254
Connected to 192.168.1.254.
220 Inactivity timer = 120 seconds. Use 'site idle <secs>' to change.
User (192.168.1.254:(none)):Administrator
331 SpeedTouch (00-0E-50-0F-FE-2A) Password required.
Password:
230 OK
ftp>cd dl
250 Changed to /dl
ftp>dir
200 Connected to 192.168.1.1 port 2055
150 Opening data connection for /bin/ls
-rwxrwxrwx   1 0        0              20 Jun 29  1971 start.cmd
-rwxrwxrwx   1 0        0         2889484 Jun 29  1971 ZZUIAA5.321
-r--r--r--   1 0        0               9 Jun 29  1971 seed.dat
-r--r--r--   1 0        0             729 Jun 29  1971 sslcert.pem
-r--r--r--   1 0        0             908 Jun 29  1971 sslkey.pem
-rwxrwxrwx   1 0        0           54952 Jun 29  1971 user.ini
-r--r--r--   1 0        0             692 Jun 29  1971 sshdsa.pem
226 Options: -l  : 7 matches total
ftp: 466 bytes received in 0,02Seconds 29,13Kbytes/sec.
ftp>cd ..
250 Changed to /
ftp>cd active
250 Changed to /active
ftp>dir
200 Connected to 192.168.1.1 port 2056
150 Opening data connection for /bin/ls
-rwxrwxrwx   1 0        0              20 Jun 29  1971 start.cmd
-rwxrwxrwx   1 0        0         2889484 Jun 29  1971 ZZUIAA5.321
226 Options: -l  : 2 matches total
ftp: 134 bytes received in 0,00Seconds 134000,00Kbytes/sec.
ftp>
```

File types

Following file types can be found:

- System software files (e.g. ZZUIAA5.321)
  The SpeedTouch™ system software file. The one in the '/active' directory is currently used by the SpeedTouch™; the one in the '/dl' directory is dormant.
- Software activation keys(e.g. VPN256-32.swk)
  Software key files allowing the SpeedTouch™ to enable the corresponding software module at startup. Per enabled software module, a software key must be present in the '/dl' directory.
- Configuration files (e.g. user.ini)
  The most recent saved configuration of the SpeedTouch™, or alternative dormant configuration files, manually stored on the SpeedTouch™. At start-up the SpeedTouch™ will load the user.ini configuration file residing in the '/dl' directory.
- Default configuration files (e.g. isp.def)
  Depending on your ISP's or network administrator's preferences, your SpeedTouch™ may have a deviant default configuration after a reset. The isp.def file, if present, reflects this deviant default configuration.
- Template files (e.g. custom.tpl)
  Service template file, used by the embedded Easy Setup wizard.
- Language-pack files (e.g. German.lng)
  Files, allowing to view the SpeedTouch™ Web Interface in a local language. Per
  selectable language a language pack file should be available.
- Secure storage files (e.g. ss_p12.dat)
  Secure storage data files, containing certificate information for the SpeedTouch™ IP Security VPN module (if enabled).
- Flag and system files (e.g. build.flg, config.inf, start.cmd)
  Protected files, created by the SpeedTouch™ for file system and startup management. For proper operation, do not change or delete these files in any way.
- Script files (.sts)

8 SpeedTouch™ Remote Access

The SpeedTouch™ access methods

The SpeedTouch™ offers various access methods to allow configuration and monitoring of the device.

- SpeedTouch™ HTTP
- SpeedTouch™ HTTPs access
- SpeedTouch™ Telnet access
- SpeedTouch™ FTP access
- SpeedTouch™ SSH access

However, for obvious security reasons, in the default configuration all these methods are denied from the WAN side. Explicit configuration is required in order to allow remote management from the WAN.

Restrictions

Two important factors determine if you are allowed access via a specific method.

- The SpeedTouch™ ***multi-level access policy***:
  It determines access rights for users.

  For more information on the multi-level SpeedTouch™ access policy, please refer to the SpeedTouch™ Multi-Level Access Policy Configuration Guide.

- The SpeedTouch™ ***system service***s:
  The SpeedTouch™ access methods are linked to different SpeedTouch™ Services.

  A ***Service*** is an application running on the SpeedTouch™. By activating a service, the SpeedTouch™ adds the appropriate NAT entries and firewall rules, for example to disable access to the SpeedTouch™ web host.

Access methods vs system services

In the table below the access methods and their services are listed:

Access method	System service name
HTTP access	HTTP
HTTPs access	HTTPs
Telnet access	TELNET
SSH access	SSH
FTP access	FTP

Configuration via CLI

To allow remote access (from the WAN side) for a certain service, add the WAN interface group to the ***interface access list*** of the service. See“ Configuration via CLI commands” on page 81

Remote Assistance

It is possible to remotely access the SpeedTouch™ Web Interface for remote assistance purposes. For more information, refer to Chapter 6, section “6.5 Remote Assistance” on page 72.

Interface access list

The interface access list of a service contains the interface groups from where a user is allowed access to that specific service.

The interface access list can contain 1 or more of the following groups:

- lan:
  the local or corporate network
- local:
  the serial console cable
- wan:
  the Internet

IPSec Protection

It is possible to use IPSec to protect remote management. You can either use IPSec tunnel mode or IPSec transport mode. For more details, refer to the IPSec configuration guide.

8.1 Remote Web Interface Access

Introduction

The SpeedTouch™ web interface is provided by the SpeedTouch™ HTTP web server. Access to this server and hence the web interface is controlled by the HTTP service. By default, the HTTP service is configured to let the web server accept http requests from LAN side only. In addition the SpeedTouch™ provides HTTPs access. This provides a more secure way (HTTP over ssl) of accessing the SpeedTouch™ HTTP web server.

Default HTTP service configuration

Use the following CLI command to see the default HTTP service configuration.

```
=>:service system list name=HTTP expand=enabled
Idx Name           Protocol         SrcPort  DstPort  Group     State
-----------------------------------------------------------------------
  1 HTTP           tcp                       80                 enabled
                  Description................ HTTP web server
                  Properties................. server
                  Managed parameters......... state port acl map log
                  Interface Access List...... lan local
                  Ip Access List............. any
                  NAT Port List.............. 80
=>
```

Configuration via CLI commands

For WAN access, you should use HTTP. For this, additional configuration of the HTTP service is needed.

Use the following CLI command to allow HTTP access from the WAN to the SpeedTouch™:

```
=>:service system ifadd name=HTTP group=wan
=>
```

If you take a look at the HTTP service configuration, you will see that the ***wan*** group is added to the **Interface Access List**:

```
=>:service system list name=HTTP expand=enabled
Idx Name           Protocol         SrcPort  DstPort  Group     State
-----------------------------------------------------------------------
  1 HTTP             tcp                       80               enabled
                 Description................ HTTP web server
                 Properties................. server
                 Managed parameters......... state port acl map log
                 Interface Access List...... lan local wan
                 Ip Access List............. any
                 NAT Port List.............. 80
=>
```

Refinement of the Service

If needed, the service can be fine-tuned to restrict the allowed traffic to:

- A single IP address
- A subnet
- A range of IP addresses

Use the following CLI command to restrict the allowed traffic to 1 IP address.

```
=>:service system ipadd name=HTTP ip=192.6.11.5
=>
```

Use the following CLI command to restrict the allowed traffic to a subnet.

```
=>:service system ipadd name=HTTP ip=192.6.11.0/24
=>
```

Use the following CLI command to restrict the allowed traffic to a range of IP addresses.

```
=>:service system ipadd name=HTTP ip=192.6.[2-55].[2-55]
=>
```

Hyper-NAT Refinements

The SpeedTouch™ features a powerful Hyper-NAT engine allowing the local hosts to share a single (remotely negotiated) public IP address.

In case Hyper-NAT is enabled on the WAN interface that will be used for remote management, and a static mapping has been made to allow remote hosts to address regular HTTP services on a host residing on your local network, you must make sure that accessing the SpeedTouch™ Web Interface is still possible.

For more information on Hyper-NAT, see the SpeedTouch™ Hyper-NAT Configuration Guide.

The default port for the HTTP server is set to 80. This can be changed by executing the following command:

```
=>:service system modify name=HTTP state=enabled port=82
=>
```

The command above will change the HTTP server port of the SpeedTouch™ from port 80 (default) to port 82.

```
=>:service system list name=HTTP expand=enabled
Idx Name          Protocol         SrcPort  DstPort    Group
-----------------------------------------------------------------------
  1 HTTP           tcp                        82
  Description................ HTTP web server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state port aclip aclif aclifgroup map log
         Attribute Values :
         State...................... enabled
         Port....................... 82
         Ip Access List............. any
         Interface Access List...... any
         Interface Group Access List lan
         Map List................... 82
         Logging.................... disabled
=>
```

NAT-refinements for SpeedTouch™ services should ***never*** be made in the NAT configuration menu, but ***always*** in System Services.

8.2 Secure Remote Web Interface Access

HTTPs service Introduction

The SpeedTouch™ supports secure HTTP or HTTPS. The Transport Layer Security (prior SSL implemented by Netscape) provides communications privacy over the Internet. The protocol allows client/server applications to communicate in a way that is designed to prevent eavesdropping, tampering, or message forgery.
The primary goal of the TLS Protocol is to provide privacy and data integrity between two communicating applications.

The remote management certificate

When booting, the SpeedTouch™ verifies if a certificate exists for remote management. If no certificate is found, the SpeedTouch™ generates its own certificate. When the SpeedTouch™ receives an HTTPs request on port 443, it transmits this certificate to the client. The client can either accept of refuse the server identity. Depending on client implementation, the end-user is prompted whether or not to trust the server.

When a web user logs in or tries to log in the SpeedTouch™, a syslog message is generated. This message indicates the user name and the underlying protocol (HTTP or HTTPS)

After negotiating the cipher between the two peers involved in the TLS protocol, data is encrypted for further communications. The minimum level of security required for the connection is indicated by each peer. If the minimum requirement of each peer cannot be achieved, the connection is closed.

Default HTTPs service configuration

Use the following CLI command to see the default HTTPs service configuration.

```
=>:service system list name=HTTPs expand=enabled
Idx Name           Protocol          SrcPort  DstPort  Group
-----------------------------------------------------------------------
  1 HTTPs         tcp                        443
   Description............... HTTP web server over ssl
   Properties................ server
   Attributes................ state port aclip aclif aclifgroup map log
   User Managed Attributes... state port aclip aclif aclifgroup map log
         Attribute Values :
         State..................... enabled
         Port...................... 443
         Ip Access List............ any
         Interface Access List...... any
         Interface Group Access List lan
         Map List.................. 443
         Logging................... disabled
=>
```

Configuration via CLI commands

To have HTTPs access via WAN, additional configuration of the HTTPs service is needed.

Use the following CLI command to allow HTTPs access from the WAN to the SpeedTouch™:

```
=>:service system ifadd name=HTTPs group=wan
=>
```

If you take a look at the HTTPs service configuration, you will see that the ***wan*** group is added to the **`Interface Access List`**:

```
=>:service system list name=HTTPs expand=enabled
Idx Name           Protocol         SrcPort  DstPort  Group
-----------------------------------------------------------------------
  1 HTTPs          tcp                       443
   Description............... HTTP web server over ssl
   Properties................ server
   Attributes................ state port aclip aclif aclifgroup map log
   User Managed Attributes... state port aclip aclif aclifgroup map log
         Attribute Values :
         State..................... enabled
         Port...................... 443
         Ip Access List............ any
         Interface Access List...... any
         Interface Group Access List lan wan
         Map List.................. 443
         Logging................... disabled
=>
```

Refinement of the Service

If needed, the service can be fine-tuned to restrict the allowed traffic to:

- A single IP address
- A subnet
- A range of IP addresses

Use the following CLI command to restrict the allowed traffic to 1 IP address.

```
=>:service system ipadd name=HTTPs ip=192.6.11.5
=>
```

Use the following CLI command to restrict the allowed traffic to a subnet.

```
=>:service system ipadd name=HTTPs ip=192.6.11.0/24
=>
```

Use the following CLI command to restrict the allowed traffic to a range of IP addresses.

```
=>:service system ipadd name=HTTPs ip=192.6.[2-55].[2-55]
=>
```

Hyper-NAT Refinements

The SpeedTouch™ features a powerful Hyper-NAT engine allowing the local hosts to share a single (remotely negotiated) public IP address.

In case Hyper-NAT is enabled on the WAN interface that will be used for remote management, and a static mapping has been made to allow remote hosts to address regular HTTPs services on a host residing on your local network, you must make sure that accessing the SpeedTouch™ Web Interface is still possible.

For more information on Hyper-NAT, see the SpeedTouch™ Hyper-NAT Configuration Guide.

The default port for the HTTPs server is set to 443. This can be changed by executing the following command:

```
=>:service system modify name=HTTPs state=enabled port=448
=>
```

The command above will change the HTTPs server port of the SpeedTouch™ from port 443 (default) to port 448.

```
=>:service system list name=HTTPs expand=enabled
Idx Name          Protocol         SrcPort  DstPort  Group
-----------------------------------------------------------------------
  1 HTTPs         tcp                        448
   Description............... HTTP web server over ssl
   Properties................ server
   Attributes................ state port aclip aclif aclifgroup map log
   User Managed Attributes... state port aclip aclif aclifgroup map log
         Attribute Values :
         State...................... enabled
         Port....................... 448
         Ip Access List............. any
         Interface Access List...... any
         Interface Group Access List lan wan
         Map List................... 448
         Logging.................... disabled
=>
```

NAT-refinements for SpeedTouch™ services should ***never*** be made in the NAT configuration menu, but ***always*** in System Services.

8.3 Remote Telnet Access

About Secure Remote Telnet Access and SSH

The SpeedTouch™ Telnet host is provided by the SpeedTouch™ Telnet server. Access to this server and hence the Telnet interface is controlled by the Telnet service. By default, the Telnet service is configured to let the Telnet server accept telnet sessions from LAN side only. In addition the SpeedTouch™ provides SSH remote access.

SSH provides a more secure way of accessing the SpeedTouch™ CLI interface and should therefore be used.

Default Telnet service configuration

Use the following CLI command to see the default Telnet service configuration.

```
=>:service system list name=TELNET expand=enabled
Idx Name        Protocol         SrcPort  DstPort  Group      State
--------------------------------------------------------------------
1 TELNET        tcp                       23                  enabled
                 Description................ Virtual Terminal
                 Properties................. server
                 Managed parameters......... state port acl map log
                 Interface Access List...... lan
                 Ip Access List............. any
                 NAT Port List.............. 23
=>
```

Configuration via CLI commands

To have Telnet access via WAN, additional configuration of the SpeedTouch™ Telnet service is needed.

Use the following CLI command to allow WAN Telnet access to the SpeedTouch™.

```
=>:service system ifadd name=TELNET group=wan
=>
```

Use the following CLI command to take a look at the Telnet service configuration, you will see that the wan group is added to the **`Interface Access List`**:

```
=>:service system list name=TELNET expand=enabled
Idx Name            Protocol         SrcPort  DstPort  Group
-----------------------------------------------------------------------
  1 TELNET          tcp                       23
  Description................ Virtual Terminal
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state port aclip aclif aclifgroup map log
         Attribute Values :
         State..................... enabled
         Port...................... 23
         Ip Access List............ any
         Interface Access List...... any
         Interface Group Access List lan wan
         Map List.................. 23
         Logging................... disabled
=>
```

Refinement of the Service

If needed, the service can be fine-tuned to restrict the allowed traffic to:

- A single IP address
- A subnet
- A range of IP addresses

Use the following CLI command to restrict the allowed traffic to 1 IP address.

```
=>:service system ipadd name=TELNET ip=192.6.11.5
=>
```

Use the following CLI command to restrict the allowed traffic to a subnet.

```
=>:service system ipadd name=TELNET ip=192.6.11.0/24
=>
```

Use the following CLI command to restrict the allowed traffic to a range of IP addresses.

```
=>:service system ipadd name=TELNET ip=192.6.[2-55].[2-55]
=>
```

Hyper-NAT Refinements

The SpeedTouch™ features a powerful Hyper-NAT engine allowing the local hosts to share a single (remotely negotiated) public IP address.

In case Hyper-NAT is enabled on the WAN interface that will be used for remote management, and a static mapping has been made to allow remote hosts to open a Telnet session to a host residing on your local network, you must make sure that Telnet access to the SpeedTouch™ CLI is still possible.

For more information on Hyper-NAT, see the SpeedTouch™ Hyper-NAT Configuration Guide.

The default port for the Telnet server is set to 23. This can be changed by executing the following command:

```
=>:service system modify name=TELNET state=enabled port=50
=>
```

The command above will change the Telnet server port of the SpeedTouch™ from port 23 (default) to port 50.

```
=>:service system list name=TELNET expand=enabled
Idx Name            Protocol        SrcPort  DstPort  Group
-----------------------------------------------------------------------
  1 TELNET          tcp                       50
  Description................ Virtual Terminal
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state port aclip aclif aclifgroup map log
         Attribute Values :
         State...................... enabled
         Port....................... 50
         Ip Access List............. any
         Interface Access List...... any
         Interface Group Access List lan wan
         Map List................... 50
         Logging.................... disabled
=>
```

NAT-refinements for SpeedTouch™ services should ***never*** be made in the NAT configuration menu, but ***always*** in System Services.

8.4 Remote SSH Access

SSH service Introduction

SSH (Secure Shell) is to be used to establish privacy between 2 network devices. It provides a secured layer on top of TCP/IP.
The implementation of SSH in the SpeedTouch™ is mainly targeted to allow privacy for CLI sessions when remotely managing the SpeedTouch™ from a WAN interface.

SSH authentication

The SpeedTouch™ supports the following authentication methods:

password	Password Authentication
publickey	Public Key Based Authentication

The user can configure the authentication to be used during SSH session setup, this can be done by executing the following CLI command:

```
=>:ssh config auth=password
```

By choosing 'password', authentication is based on username / password.
By choosing 'public_key', authentication is based on public key, searching in the database of installed public keys on the SpeedTouch™.

Enabling the Secure Shell

The Secure Shell service can be enabled by executing the following CLI command:

```
=>:ssh config shell=enabled
```

Public Keys

The SpeedTouch™ supports management of SSH public keys. To each public key installed on the SpeedTouch™, a role is assigned. This role defines the privileges, a user accessing the SpeedTouch™, can have.

To view the public keys installed on the SpeedTouch™ use the following CLI command:

```
=>:ssh publickey list
Name      Role          Size    Fingerprint
----      ----          ----    -----------
JohnD      Administrator  432     ssh-dss 1023
b8:6d:15:db:82:3f:69:b7:9b:d0:3f:75:84:a2:13:59
AnnC       User           435     ssh-dss 1024
0a:ba:d8:ef:bb:b4:41:d0:dd:42:b0:6f:6b:50:97:31
Total keys present 2
```

To install a new public key on the SpeedTouch™ use the following command:

```
=>:ssh publickey add name=Super role=SuperUser
Paste your public key here.  End with ctrl-d.
AAAAB3NzaC1kc3MAAACAeFoVl4XEhVWB64jVtYRHCoGYuPWSkV79Xv4GkBxGIKpr
MUPO4DrkCPJrUb13QZ2ssBb4KBlKTCregdveujREBlO6e0qOMQNsVRUm1380b+kx
d8STt+2Bp2a4lW+D+jw8zUMb1xA6DWDYvm/BLi3EyCxKNOJkQ8QUO1HLDMvvDW8A
AAAVAJMlIB8+K+Lkmd2T8C4Kg+cKfGGxAAAAgCNZ5eKMTZR/qiwo68UgSNsXyEyV
WdC3B2byNImMp8V9Xo6CHWqswSry0Av7OwaIIMQ2sSYfoAixTYZZKxszqxx787Gt
kVFYRxTJp7t3ax1hoVniPLRYFmyqOpxEQzGyEhpfljHvOfUZW8l3Ot5BAObIyJtu
GUakj99kg7kqKtx7AAAAgCiVThLbqlq8ZCT8u2Q1aegrVE0ip4GaMK0aLRSk3cEM
MkPVw7fC/AMJyVXUMShdK3TXkppO+a1cauCSK42JzPbpfPLHpKHZBMHdAJIT/yUJ
3NVixT/6ZCk5e/YiFDcdXmljMoylmjkB+KjRR5Wafd1VzKolPl+t24Wf9BstYMgo
Read 576 bytes from stdin.
```

This command has added a new public key for the user “Super” who has role of a SuperUser assigned.

Use the following CLI command to verify that the new publickey has been added:

```
=>:ssh publickey list
Name     Role           Size   Fingerprint
----     ----           ----   -----------
Tony     Administrator  432    ssh-dss 1023
b8:6d:15:db:82:3f:69:b7:9b:d0:3f:75:84:a2:13:59
Test     User           435    ssh-dss 1024
0a:ba:d8:ef:bb:b4:41:d0:dd:42:b0:6f:6b:50:97:31
Super    SuperUser      432    ssh-dss 1023
1c:68:dc:1e:37:3d:ab:dc:60:7f:97:62:03:22:87:83
Total keys present 3
```

Default SSH service configuration

Use the following CLI command to see the default SSH service configuration.

```
=>:service system list name=SSH expand=enabled
Idx Name           Protocol         SrcPort  DstPort  Group
----------------------------------------------------------------------
  1 SSH            tcp                        22
  Description................ SSH server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... enabled
  Port....................... 22
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List lan
  Map List................... 22
  Logging.................... disabled
```

Configuration via CLI commands

To have SSH access via WAN, additional configuration of the SSH service is needed.

Use the following CLI command to allow SSH access from the WAN to the SpeedTouch™:

```
=>:service system ifadd name=SSH group=wan
```

If you take a look at the SSH service configuration, you will see that the ***wan*** group is added to the **`Interface Access List`**:

```
=>:service system list name=SSH expand=enabled
Idx Name           Protocol        SrcPort  DstPort  Group
----------------------------------------------------------------------
  1 SSH            tcp                      22
  Description................ SSH server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... enabled
  Port....................... 22
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List lan wan
  Map List................... 22
  Logging.................... disabled
```

Refinement of the Service

If needed, the service can be fine-tuned to restrict the allowed traffic to:

- A single IP address
- A subnet
- A range of IP addresses

Use the following CLI command to restrict the allowed traffic to 1 IP address.

```
=>:service system ipadd name=SSH ip=192.6.11.5
```

Use the following CLI command to restrict the allowed traffic to a subnet.

```
=>:service system ipadd name=SSH ip=192.6.11.0/24
```

Use the following CLI command to restrict the allowed traffic to a range of IP addresses.

```
=>:service system ipadd name=SSH ip=192.6.[2-55].[2-55]
```

Hyper-NAT Refinements

The SpeedTouch™ features a powerful Hyper-NAT engine allowing the local hosts to share a single (remotely negotiated) public IP address.

In case Hyper-NAT is enabled on the WAN interface that will be used for remote management, and a static mapping has been made to allow remote hosts to address regular SSH services on a host residing on your local network, you must make sure that accessing the SpeedTouch™ Web Interface is still possible.

For more information on Hyper-NAT, see the SpeedTouch™ Hyper-NAT Configuration Guide.

The default port for the SSH server is set to 22. This can be changed by executing the following command:

```
=>:service system modify name=SSH state=enabled port=35
```

The command above will change the SSH server port of the SpeedTouch™ from port 22 (default) to port 35.

```
=>:service system list name=SSH expand=enabled
Idx Name           Protocol        SrcPort  DstPort  Group
----------------------------------------------------------------------
  1 SSH            tcp                          35
  Description................ SSH server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... enabled
  Port....................... 35
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List lan
  Map List................... 35
  Logging.................... disabled
```

NAT-refinements for SpeedTouch™ services should ***never*** be made in the NAT configuration menu, but ***always*** in System Services.

8.5 Remote FTP Access

Introduction

The SpeedTouch™ FTP interface is provided by the SpeedTouch™ FTP server. Access to this server and hence the FTP interface is controlled by the SpeedTouch™ FTP service. By default, the FTP service is configured to let the SpeedTouch™ FTP server accept FTP requests from LAN side only. In addition the SpeedTouch™ provides FTP over SSH.

FTP over SSH provides a more secure way of accessing the SpeedTouch™ FTP service and should therefore be used.

Default HTTP service configuration

Use the following CLI command to see the default FTP service configuration.

```
=>:service system list name=FTP expand=enabled
Idx Name         Protocol        SrcPort  DstPort  Group       State
--------------------------------------------------------------------
  1 FTP          tcp                      21                   enabled
                 Description................ File Transfer
                 Properties................. server
                 Managed parameters......... state port acl map log
                 Interface Access List...... lan
                 Ip Access List............. any
                 NAT Port List.............. 21
```

Configuration via CLI commands

To have FTP access via WAN, additional configuration of the SpeedTouch™ FTP service is needed.

Use the following CLI command to allow WAN FTP access to the SpeedTouch™ via CLI commands.

```
=>:service system ifadd name=FTP group=wan
```

Use the following CLI command to look at the FTP service configuration, we notice that the wan group is added to the **Interface Access List**:

```
=>:service system list name=FTP expand=enabled
Idx Name        Protocol         SrcPort  DstPort  Group       State
-----------------------------------------------------------------------
  1 FTP         tcp                       21                   enabled
                 Description................ File Transfer
                 Properties................. server
                 Managed parameters......... state port acl map log
                 Interface Access List...... lan  wan
                 Ip Access List............. any
                 NAT Port List.............. 21
```

The added rules will allow any user on the WAN to open an FTP session to the SpeedTouch™ and access the file system after authentication.

Refinement of the Service

If needed, the service can be fine-tuned to restrict the allowed traffic to:

- A single IP address
- A subnet
- A range of IP addresses

Use the following CLI command to restrict the allowed traffic to 1 IP address.

```
=>:service system ipadd name=FTP ip=192.6.11.5
```

Use the following CLI command to restrict the allowed traffic to a subnet.

```
=>:service system ipadd name=FTP ip=192.6.11.0/24
```

Use the following CLI command to restrict the allowed traffic to a range of IP addresses.

```
=>:service system ipadd name=FTP ip=192.6.[2-55].[2-55]
```

Hyper-NAT Refinements

The SpeedTouch™ features a powerful Hyper-NAT engine allowing the local hosts to share a single (remotely negotiated) public IP address.

In case Hyper-NAT is enabled on the WAN interface that will be used for remote management, and a static mapping has been made to allow remote hosts to address regular FTP services on a host residing on your local network, you must make sure that accessing the SpeedTouch™ FTP server is still possible.

For more information on Hyper-NAT, see the SpeedTouch™ Hyper-NAT Configuration Guide.

The default port for the FTP server is set to 21. This can be changed by executing the following command:

```
=>:service system modify name=FTP  state=enabled port=26
```

The command above will change the FTP server port of the SpeedTouch™ from port 21 (default) to port 26.

```
=>:service system list name=FTP expand=enabled
Idx Name        Protocol       SrcPort    DstPort    Group
-------------------------------------------------------------------
  1 FTP         tcp                       26
  Description................ File Transfer
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state port aclip aclif aclifgroup map log
         Attribute Values :
         State...................... enabled
         Port....................... 26
         Ip Access List............. any
         Interface Access List...... any
         Interface Group Access List lan
         Map List................... 26
         Logging.................... disabled
```

8.6 Remote SFTP Access

SFTP Introduction

SSH is to be used to establish privacy between 2 network devices. It provides a secured layer on top of TCP/IP.
SFTP allows privacy during file transfer sessions.

SSH authentication

The SpeedTouch™ supports the following authentication methods:

password	Password Authentication
publickey	Public Key Based Authentication

The user can configure the authentication to be used during SSH session setup, this can be done by executing the following CLI command:

```
=>:ssh config auth=password
```

By choosing 'password', authentication is based on username / password.
By choosing 'public_key', authentication is based on public key, searching in the database of installed public keys on the SpeedTouch™.

Enableing SFTP

The Secure Shell service can be enabled by executing the following CLI command:

```
=>:ssh config sftp=enabled
```

Public Keys

The SpeedTouch™ supports management of SSH public keys. To each public key installed on the SpeedTouch™, a role is assigned. This role defines the privileges, a user accessing the SpeedTouch™, can have.

To view the public keys installed on the SpeedTouch™ , use the following CLI command:

```
=>:ssh publickey list
Name      Role           Size    Fingerprint
----      ----           ----    -----------
JohnD      Administrator  432     ssh-dss 1023
b8:6d:15:db:82:3f:69:b7:9b:d0:3f:75:84:a2:13:59
AnnC       User           435     ssh-dss 1024
0a:ba:d8:ef:bb:b4:41:d0:dd:42:b0:6f:6b:50:97:31
Total keys present 2
```

To install a new public key on the SpeedTouch™ use the following command:

```
=>:ssh publickey add name=Super role=SuperUser
Paste your public key here.  End with ctrl-d.
AAAAB3NzaC1kc3MAAACAeFoVl4XEhVWB64jVtYRHCoGYuPWSkV79Xv4GkBxGIKpr
MUPO4DrkCPJrUb13QZ2ssBb4KBlKTCregdveujREBlO6e0qOMQNsVRUm1380b+kx
d8STt+2Bp2a4lW+D+jw8zUMb1xA6DWDYvm/BLi3EyCxKNOJkQ8QUO1HLDMvvDW8A
AAAVAJMlIB8+K+Lkmd2T8C4Kg+cKfGGxAAAAgCNZ5eKMTZR/qiwo68UgSNsXyEyV
WdC3B2byNImMp8V9Xo6CHWqswSry0Av7OwaIIMQ2sSYfoAixTYZZKxszqxx787Gt
kVFYRxTJp7t3ax1hoVniPLRYFmyqOpxEQzGyEhpfljHvOfUZW8l3Ot5BAObIyJtu
GUakj99kg7kqKtx7AAAAgCiVThLbqlq8ZCT8u2Q1aegrVE0ip4GaMK0aLRSk3cEM
MkPVw7fC/AMJyVXUMShdK3TXkppO+a1cauCSK42JzPbpfPLHpKHZBMHdAJIT/yUJ
3NVixT/6ZCk5e/YiFDcdXmljMoylmjkB+KjRR5Wafd1VzKolPl+t24Wf9BstYMgo
Read 576 bytes from stdin.
```

This command has added a new public key for the user “Super” who has role of a SuperUser assigned.

use the following CLI command to verify that the new publickey has been added:

```
=>:ssh publickey list
Name     Role           Size   Fingerprint
----     ----           ----   -----------
Tony     Administrator  432    ssh-dss 1023
b8:6d:15:db:82:3f:69:b7:9b:d0:3f:75:84:a2:13:59
Test     User           435    ssh-dss 1024
0a:ba:d8:ef:bb:b4:41:d0:dd:42:b0:6f:6b:50:97:31
Super    SuperUser      432    ssh-dss 1023
1c:68:dc:1e:37:3d:ab:dc:60:7f:97:62:03:22:87:83
Total keys present 3
```

Default SSH service configuration

Use the following CLI command to see the default SSH service configuration.

```
=>:service system list name=SSH expand=enabled
Idx Name           Protocol         SrcPort  DstPort  Group
----------------------------------------------------------------------
  1 SSH            tcp                       22
  Description................ SSH server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... enabled
  Port....................... 22
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List lan
  Map List................... 22
  Logging.................... disabled
```

Configuration via CLI commands

To have SSH access via WAN, additional configuration of the SSH service is needed.

Use the following CLI command to allow SSH access from the WAN to the SpeedTouch™:

```
=>:service system ifadd name=SSH group=wan
```

If you take a look at the SSH service configuration, you will see that the ***wan*** group is added to the **`Interface Access List`**:

```
=>:service system list name=SSH expand=enabled
Idx Name           Protocol         SrcPort  DstPort  Group
----------------------------------------------------------------------
  1 SSH            tcp                       22
  Description................ SSH server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... enabled
  Port....................... 22
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List lan wan
  Map List................... 22
  Logging.................... disabled
```

Refinement of the Service

If needed, the service can be fine-tuned to restrict the allowed traffic to:

- A single IP address
- A subnet
- A range of IP addresses

Use the following CLI command to restrict the allowed traffic to 1 IP address.

```
=>:service system ipadd name=SSH ip=192.6.11.5
```

Use the following CLI command to restrict the allowed traffic to a subnet.

```
=>:service system ipadd name=SSH ip=192.6.11.0/24
```

Use the following CLI command to restrict the allowed traffic to a range of IP addresses.

```
=>:service system ipadd name=SSH ip=192.6.[2-55].[2-55]
```

Hyper-NAT Refinements

The SpeedTouch™ features a powerful Hyper-NAT engine allowing the local hosts to share a single (remotely negotiated) public IP address.

In case Hyper-NAT is enabled on the WAN interface that will be used for remote management, and a static mapping has been made to allow remote hosts to address regular SSH services on a host residing on your local network, you must make sure that accessing the SpeedTouch™ Web Interface is still possible.

For more information on Hyper-NAT, see the SpeedTouch™ Hyper-NAT Configuration Guide.

The default port for the SSH server is set to 22. This can be changed by executing the following command:

```
=>:service system modify name=SSH state=enabled port=35
```

The command above will change the SSH server port of the SpeedTouch™ from port 22 (default) to port 35.

```
=>:service system list name=SSH expand=enabled
Idx Name           Protocol        SrcPort  DstPort  Group
----------------------------------------------------------------------
  1 SSH            tcp                              35
  Description................ SSH server
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... enabled
  Port....................... 35
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List lan
  Map List................... 35
  Logging.................... disabled
```

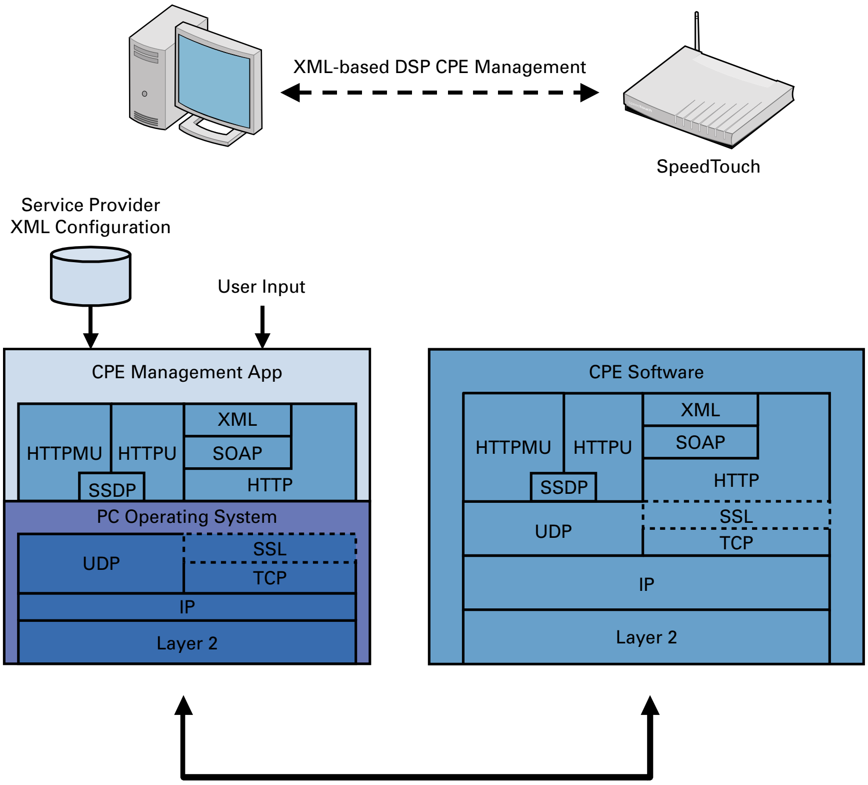
8.7 LAN Based Auto-Configuration (LAC) Support (TR-064)

About TR-064

The SpeedTouch™ supports the DSL Forum's TR-064 Technical Report on LAN Based Auto-Configuration. This provides the possibility to automatically configure the SpeedTouch™ from a management application running on a PC on the customer premises LAN. For more information, refer to the DSL Forum's Technical Report TR-064.

Architecture

The diagram below shows the architecture and protocol stack for TR-064 on the SpeedTouch™:



Configuration Options

It is impossible to configure LAC via the Web interface. Only CLI commands can be used.

How to Configure LAC: Syntax

No configuration is needed for LAC. It simply needs to be enabled or disabled. From the system prompt, use the following command:

```
[system]=>config
tr64 = disabled | enabled
tr64auth = disabled | enabled
```

How to Configure LAC: Parameter Descripion

The CLI command uses the following parameters:

Parameter	Value	Description
tr64	**enabled** or **disabled**	Enable or disable LAC/TR-064
tr64auth	**enabled** or **disabled**	Enable or disable LAC/TR-064 Security

8.8 CPE WAN Management Protocol (CWMP) Support (TR-069)

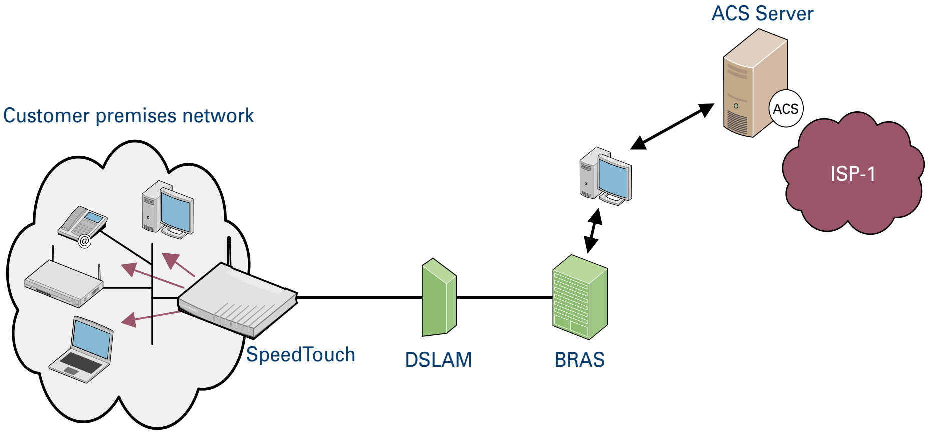
About CWMP

The SpeedTouch™ supports the DSL Forum's TR-069 Technical Report on CWMP. This allows the SpeedTouch™ to be configured and monitored from a management application running on a remote Auto-Configuration Server (ACS). For more information, refer to the DSL Forum's technical report TR-069 "CPE WAN Management Protocol".

In any regular scenario, the ACS sets all connection request parameters to their required values when the SpeedTouch™ connects to the ACS for the first time.

Architecture

The diagram below shows the CWMP architecture for the SpeedTouch™:



Supported Features

The TR-069 functionality as supported by the SpeedTouch™ has the following features:

- Start-up mechanism (including Remote Inventory) with support of SSL and DNS name resolution for ACS
- Transfer of files (firmware, configuration file, script file).
- Data model supporting the following use cases: auto-provisioning, integrated service activation, wireless LAN, diagnostics.

Configuration Options

It is impossible to configure the CWMP parameters via the Web interface. Only CLI commands can be used.

How to View the Configuration

From the main prompt, use the following command to view the CWMP Parameters:

```
=>cwmp
=>[cwmp]config
```

This results in the following type of output on the screen, providing an overview of all parameters and their values:

```
State                                : disabled
Mode                                 : full
Max Envelopes                        : 2
Session Timeout                      : 60
No Ip Timeout                        : 10
Connection Request Port              : 51005
Periodic Inform                      : enabled
Periodic Inform Interval             : 3600 s
Connection Request                   : disabled
Connection Request UserName          :
Connection Request PassWord          :
Connection Request Path              :
Connection Request Authentication    : none
Qos class                            : 12
Boot delay range between 0 and       : 0 s
```

Similarly, to view the CWMP Server configuration, enter the following command sequence from the cwmp prompt:

```
=>[cwmp]server
=>[cwmp server]config
```

How to Configure CWMP: Syntax

From the cwmp prompt, use the following command to configure the CWMP parameters:

```
config
[state = <{disabled|enabled}>]
[mode = <{read-only|full}>]
[periodicInform = <{disabled|enabled}>]
[periodicInfInt = <number>] [sessionTimeout = <number>]
[noIpTimeout = <number>] [maxEnvelopes = <number>]
[connectionRequest = <{disabled|enabled}>]
[connectionReqPath = <string>]
[connectionReqUserName = <string>]
[connectionReqPsswd = <string>]
[connectionReqAuth = <{none|basic|digest}>]
[qos-class = <number>] [bootdelayrange = <number>]
```

How to Configure CWMP: Parameter Descripion

The CLI command uses the following parameters:

Parameter	Value	Description
state	**enabled** or **disabled**	Enable or disable the CWMP daemon
mode	**read-only** or **full**	Set the operational mode of the CWMP daemon to read-only or full.
periodicInform	**enabled** or **disabled**	Enable or disable CWMP periodic inform
periodicInfInt	**number**	Set the interval between two periodicInform messages in seconds
sessionTimeout	**number**	Set the HTTP session-timeout in seconds
noIpTimeout	**number**	Set the time (in seconds) the IP may be 0 after uploading a new config file
maxEnvelopes	**number**	Set the maximum number of SOAP envelopes sent within one http-message
connectionRequest	**enabled** or **disabled**	Enable or disable CWMP connection request
connectionReqPath	text string	Set the path where the cwmp daemon can be reached
connectionReqUserName	text string	Set the username the ACS must use to log in
connectionReqPsswd	text string	Set the password the ACS must use to log in
connectionReqAuth	**none**, **basic** or **digest**	Set the authentication type of modem CWMP server for asynchronous connects
qos-class	number	Set the quality of service class for outgoing CWMP data
bootdelayrange	number	Set the delay on boot before inform is sent

How to Configure the CWMP Server: Syntax

From the cwmp server prompt, use the following commands to configure the CWMP Server parameters:

```
config
[url = <string>]
[username = <string>]
[password = <string>]
```

How to Configure the CWMP Server: Parameter Description

The CLI command uses the following parameters:

Parameter	Value	Description
url	text string	URL used to contact the ACS server.
username	text string	User name for ACS Digest Authentication
password	text string	Password for ACS Digest Authentication

9 The Integrated SpeedTouch™ ISDN Modem

Overview

This chapter covers the following topics:

9.1 About the ISDN Modem

Introduction

Next to the DSL, Ethernet and Wireless interface, the SpeedTouch™ features an ISDN modem, to allow the end user Internet connectivity.

Scenarios

The ISDN modem can be used as:

- A stand alone WAN interface to connect to the Internet or corporate network
- A fall back interface for the DSL interface.
- Dial-in WAN interface for remote access or dial-in networking.

For more information see, “Fall-back Connections with the Integrated ISDN Modem Application Note”

ISDN software key

It is necessary to enable the ISDN module for full deployment.

For more information see, “The SpeedTouch™ 605/608 (WL)/620 User’s Guide”.

The ISDN modem as initiator or responder

The ISDN modem can be configured as follows:

- As ***Initiator*** (Dial out)*:*
  The SpeedTouch™ starts the connection.
- As ***Responder*** (Dial in)*:*
  Configure the SpeedTouch™ as a responder if you want to set up a connection from another device towards the SpeedTouch™.

Security

There are 3 ways of securing the ISDN modem of the SpeedTouch™.

- Reduce the amount of people that can dial in to the SpeedTouch™ by configuring a group of allowed dial-in numbers.
- On a higher layer level, it is possible to configure the Stateful inspection firewall to allow a range or one single IP address to dial in to SpeedTouch™.
- Maintain a smart user policy by configuring users, using the multi-level SpeedTouch™ access policy.

PPP on top of the ISDN Modem

The SpeedTouch™ supports PPP over ISDN (PPPoI), which implies that all the features of a PPP connection are applicable on the SpeedTouch™ ISDN modem such as dial-on-demand (dod) connections which are mostly used for ISDN connections.

If both an ADSL and ISDN interface are configured, make sure to give a proper value to the doddelay of the ISDN modem.
For more information see, “Fall-back Connections with the Integrated ISDN Modem Application Note”

Scenario examples

The following 2 scenarios are examples of using the ISDN modem as a responder:

- Dialling in to the SpeedTouch™ for remote management purposes:

  This scenario is a good alternative for when the DSL line is down or for when the SpeedTouch™ doesn't have a fixed IP address.

  Take into account the following configuration factors:

  - Log in with an account that is able to change the SpeedTouch™ configuration using a WAN interface.
  - Add the ISDN modem to the required service you want to use.
- Dealing in via the SpeedTouch™ to surf to the corporate network.
  Take into account the following configuration factors:

  - The router configuration of the SpeedTouch™ is correct.
  - The correct firewall rule is added to allow traffic from the ISDN modem towards to corporate network.

9.2 How to Configure the ISDN Modem

General configuration procedure

Proceed as follows to configure the ISDN modem:

Step	Action
1	Add a new ISDN interface with name ISP1: `=>:isdn ifadd intf=ISP1`
2	Configure the new ISDN interface with the dial-in number of the ISP: `=>:isdn ifconfig intf=ISP1 number=090934100 mlppp=disabled mode=dialout` The PPP Multilink protocol **(`mlppp`)** can be enabled or disabled. - disabled: dialup 64 Kbps - enabled: dialup 128 Kbps MLPPP is by default disabled. Choose mode=dialin to configure the ISDN modem as a responder.
3	Attach the ISDN interface: `=>:isdn ifattach intf=ISP1`

ISDN group configuration

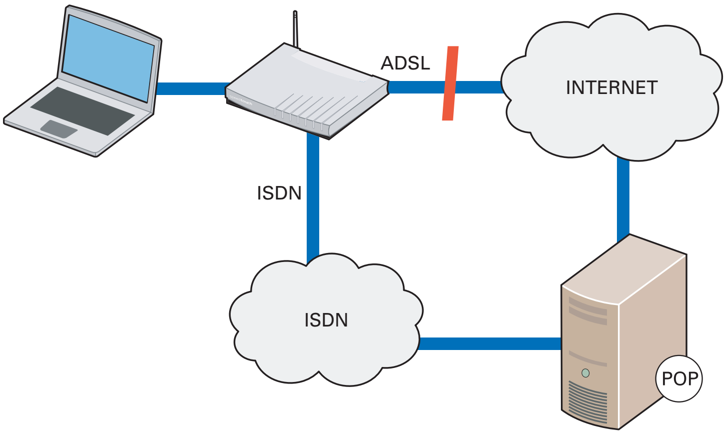
Proceed as follows to configure a group of allowed numbers:

Step	Action
1	Create a new group with the name friends: `=>:isdn group addgroup name=friends`
2	Add the phonenumber 036467348 to the allowed list: `=>:isdn group addrule group=friends number=036467348`
3	Use the character *?* to add wildcards to the phone numbers in the allowed list: `=>:isdn group addrule group=friends number=0154548??`

9.3 ISDN Backup

ISDN Backup

The SpeedTouch™ has an ISDN interface that can be used to create an ISDN backup for the ADSL line. The process is shown in the diagram below:



When the ADSL line fails, the SpeedTouch™ establishes a dial-in connection towards the ISDN network. A PPP connection is then established over this ISDN connection which takes over the traffic from the failed ADSL line.

ISDN Callback

If the SpeedTouch™ establishes the ISDN connection from the user end, the user will be charged with the connection cost. To avoid this, it is possible to use the callback option (if the other end supports it).

The SpeedTouch™ establishes a dial in connection and provides all necessary information, and disconnects. The system then waits for a callback to establish the ISDN connection over which the PPP connection is established.

Dial-In Modes

The dial in connection line can operate in one of two modes:

- ***Always on:*** the backup connection is always on
- ***Dial on demand:*** the backup connection is established when necessary, i.e. when the ADSL line fails.

Configuring Callback

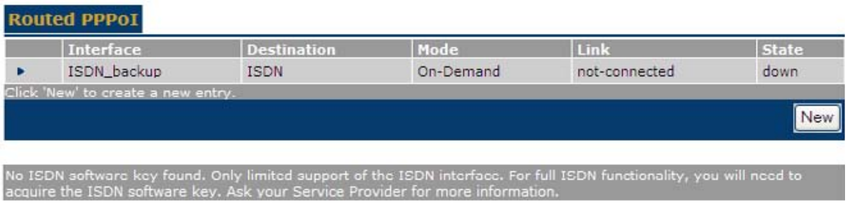
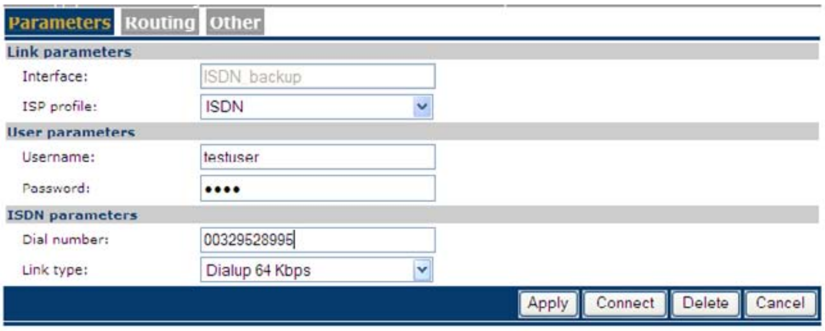
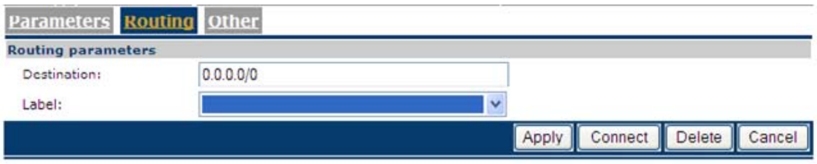
In order to configure callback, you need to do the following:

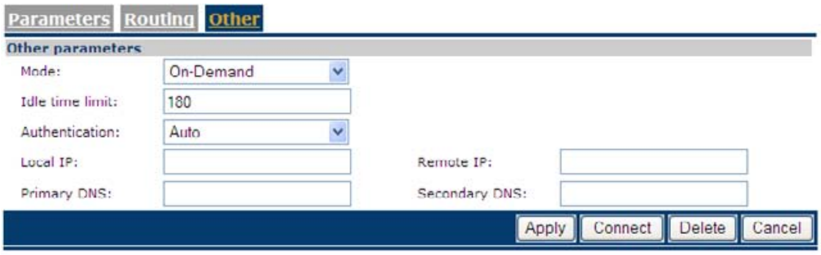
Action	See
Configure the ISDN Dial-In Connection	9.3.1
Configure the PPP connection	9.3.2

9.3.1 How to Configure the ISDN Dial-In Connection

Via the Web Interface

Proceed as follows to configure the ISDN dial-in connection via the Web interface:

Step	Action
1	Go to **Expert** mode
2	Click **Connections**
3	Click **Routed PPoI** ***Result***: on the page that appears, you see a predefined connection called **ISDN backup**.  Routed PPPoI Interface: ISDN_backup · Destination: ISDN · Mode: On-Demand · Link: not-connected · State: down Click 'New' to create a new entry. No ISDN software key found. Only limited support of the ISDN interface. For full ISDN functionality, you will need to acquire the ISDN software key. Ask your Service Provider for more information.
4	Click the arrow to open the configuration pages for this connection. ***Result:*** the Parameters page appears:  Parameters Routing Other Link parameters Interface: ISDN_backup ISP profile: ISDN User parameters Username: testuser Password: •••• ISDN parameters Dial number: 00329528995 Link type: Dialup 64 Kbps Apply Connect Delete Cancel
5	Fill in the user name and password for the connection, as well as the dial-in number. Also select the link type. Click **Apply**.
6	Click **Routing**. ***Result:*** the Routing page appears:.  Parameters Routing Other Routing parameters Destination: 0.0.0.0/0 Label: Apply Connect Delete Cancel
7	If necessary, fill in the destination and a label. Click **Apply**.

Step	Action
8	Click **Other**. ***Result:*** the Other page appears:  Parameters Routing Other Apply Connect Delete Cancel Other parameters Mode: On-Demand Idle time limit: 180 Authentication: Auto Local IP: Remote IP: Primary DNS: Secondary DNS:
9	Select the Mode (**On-Demand** or **Always On**)
10	Fill in the idle time limit. If the connection is On-Demand, and the connection is idle for this amount of time (i.e. no traffic), the connection shuts down. The other values are automatically retrieved when the PPP connection is established

.

You cannot enable Callback via the Web interface. For this, you must use CLI. If you do not enable it, the SpeedTouch™ will establish the ISDN connection over which the PPP connection is made.

Via CLI

Use the following command sequence to configure the ISDN dial-in connection via CLI:

```
[isdn]=>ifconfig
intf                    number                  mlppp
BODstart                BODend                  mode
callback                group
[isdn]=>ifconfig
intf = buisdn
[number] = 025292222
[mlppp] =
disabled                enabled
[mlppp] = disabled
[BODstart] = 40
[BODend] = 38
[mode] = dialout
[callback] =
disabled                enabled
[callback] = disabled
[group] = empty
:isdn ifconfig intf=buisdn mlppp=disabled callback=disabled
[isdn]=>:isdn ifconfig intf=buisdn mlppp=disabled callback=enabled
[isdn]=>saveall
[isdn]=>:ppp
[ppp]=>ifattach intf bu_isdn
[ppp]=>
[ppp]=>
```

CLI Parameters: The table below provides a description of the relevant parameters:

Parameter	Value	Description
intf	text string	name of the ISDN interface
number	numeric	Dial-in number for the ISDN line
mlppp	**enabled** or **disabled**	Enable or disable multilink ppp. This means that the ppp can be established over 1 or 2 ISDN B links (64 kbps), thus creating a bandwidth of either 64 or 128 kbps
BODStart	Numerical (in kbps) Default: 40	If multilink ppp is enabled and the required bandwidth exceeds this value, a second ISDN B link is used for the ppp connection
BODEnd	Numerical (in kbps) Default: 38	If multilink ppp is enabled and the required for it drops below this value, the second ISDN B link in the ppp connection is dropped.
mode	dialout	SpeedTouch™is set for dialout. This value is mandatory.
callback	**enabled** or **disabled**	Enable or disable callback. Note that the dial-in end must also be set for callback if you enable it.

9.3.2 How to Configure the PPP Connection

How to Configure the PPP Connection Via the Web Interface

If you used the Web interface to configure the Dial-In connection, you do not need any additional configuration.

How to Configure the PPP Connection Via CLI

Use the following command sequence to configure the PPP connection via CLI:

```
[ppp]=>ifconfig
intf = bu_isdn
[dest] = buisdn
[user] = cpesit@rednet
[password] =
[pcomp] = disabled
[accomp] = enabled
[trace] = disabled
[auth] = auto
[restart] = enabled
[retryinterval] = 10
[passive] = disabled
[silent] = disabled
[echo] = enabled
[mru] = 1500
[laddr] =
[raddr] =
[netmask] =
[format] =
[format] = none
[pool] =
[savepwd] = enabled
[demanddial] = enabled
[doddelay] = 30
[primdns] =
[secdns] =
[dnsmetric] =
[idletime] = 45
[idletrigger] = Tx
[unnumbered] = disabled
:ppp ifconfig intf=bu_isdn format=none
[ppp]=>
```

CLI Parameters: The table below provides a description of the relevant parameters. Do not alter the default value of the parameters not shown in this table:

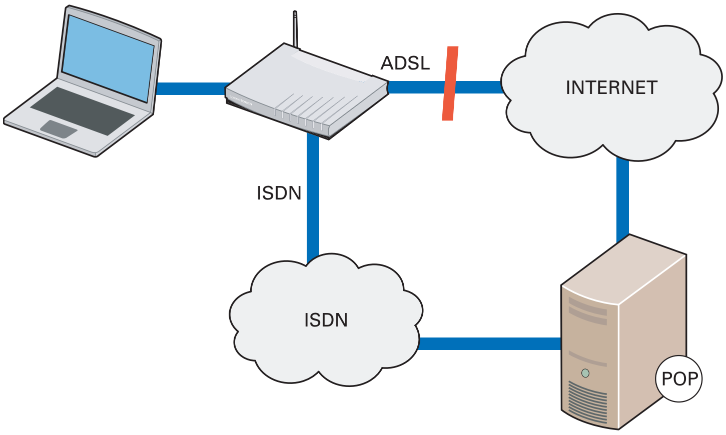
Parameter	Value	Description
intf	text string	name of the PPP interface
dest	text string	name of the ISDN interface on which the PPP connection is built
user	text string	Username needed for the PPP connection
password	text string	Password needed for the PPP connection
auth	**pap**, **chap** or **auto**	Sets the authentication protocol
restart	**enabled** or **disabled**	Enable or disable the retry function. This means that the system will try again if establishing the link fails.
retryinterval	numeric	If the connection fails, and restart is enabled, the system will retry establishing the connection after this interval.
passive	**enabled** or **disabled**	Enable or disable passive mode
silent	**enabled** or **disabled**	Enable or diable silent mode
echo	**enabled** or **disabled**	Enable or disable echo
mru	numeric	
ladrress	IP address	Local IP address of the PPP connection. This is completed automatically when establishing the connection. Do not fill it in manually.
radress	IP address	Remote IP address of the PPP connection. This is completed automatically when establishing the connection. Do not fill it in manually.
netmask	Format depends on the format setting	Netmask for the ppp connection. This is completed automatically when establishing the connection. Do not fill it in manually.
format	**cidr**, **dotted** or **none**	Set the format of the netmask to cidr or dotted , or use no netmask.
savepwd	**enabled** or **disabled**	Save the pasword. After establishing the ppp link for the first time, you no longer need to provide it for subsequent connections.

Parameter	Value	Description
demanddial	**enabled** or **disabled**	Enable or disable dial-on-demand (DOD). This means that the system will engage the ISDN backup if the DSL line fils
doddelay	numeric (in s) Default: 120	Delay during which DOD is disengaged; This interval is meant to allow the DSL line time to synchronize
primdns	ip address	IP address of the primary dns server
secdns	ip address	IP address of the secondary dns server
idletime	numeric	If the connection is idle for this amount of time, the link is disconnected
idletrigger	Tx or Rx	Idle time is trigered on either transmission side (Tx) or receive side (Rx)

9.4 ISDN Callback

ISDN Backup

The SpeedTouch™ has an ISDN interface that can be used to create an ISDN backup for the ADSL line. The process is shown in the diagram below:



When the ADSL line fails, the SpeedTouch™ establishes a dial-in connection towards the ISDN network. A PPP connection is then established over this ISDN connection which takes over the traffic from the failed ADSL line.

ISDN Callback

If the SpeedTouch™ establishes the ISDN connection from the user end, the user will be charged with the connection cost. To avoid this, it is possible to use the callback option (if the other end supports it).

The SpeedTouch™ establishes a dial in connection and provides all necessary information, and disconnects. The system then waits for a callback to establish the ISDN connection over which the PPP connection is established.

This is typical for connections which are governed by an Service Level Agreement (SLA).

More Information

For more information, refer to the WAN Fallback Application Note.

Dial-In Modes

The dial in connection line can operate in one of two modes:

- ***Always on:*** the backup connection is always on
- ***Dial on demand:*** the backup connection is established when necessary, i.e. when the ADSL line fails.

Configuring Callback

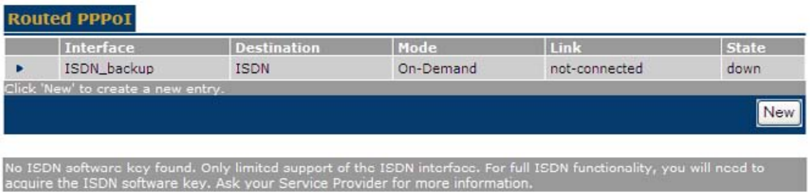
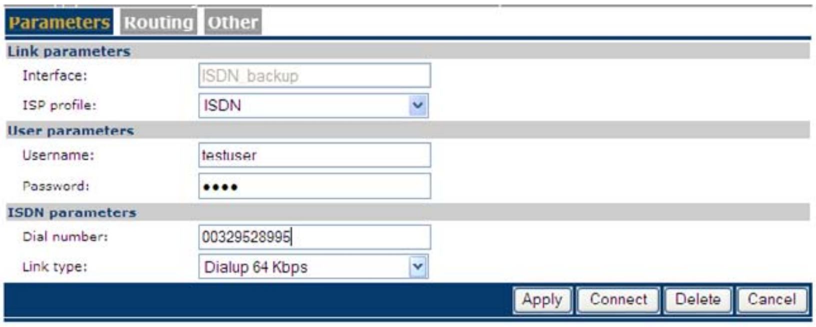
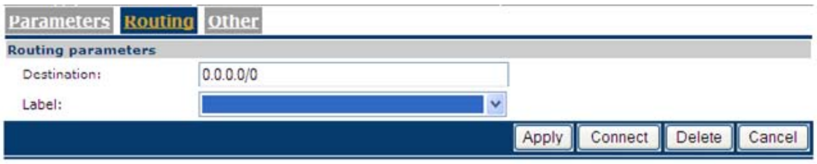
In order to configure callback, you need to do the following:

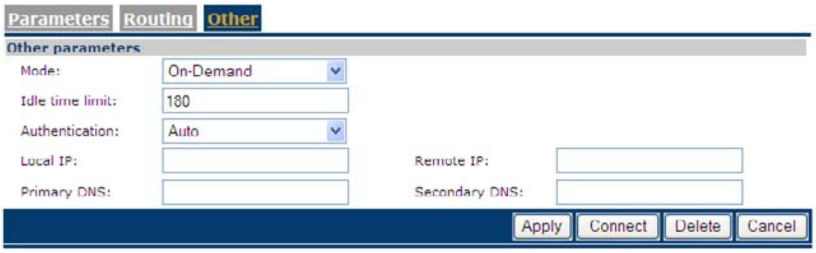
Action	See
Configure the ISDN Dial-In Connection	9.3.1
Configure the PPP connection	9.3.2

9.4.1 How to Configure the ISDN Dial-In Connection

Via the Web Interface

Proceed as follows to configure the ISDN dial-in connection via the Web interface:

Step	Action
1	Go to **Expert** mode
2	Click **Connections**
3	Click **Routed PPoI** ***Result:*** on the page that appears, you see a predefined connection called **ISDN backup**.  Routed PPPoI Interface: ISDN_backup · Destination: ISDN · Mode: On-Demand · Link: not-connected · State: down Click 'New' to create a new entry. No ISDN software key found. Only limited support of the ISDN interface. For full ISDN functionality, you will need to acquire the ISDN software key. Ask your Service Provider for more information.
4	Click on the arrow to open the configuration pages for this connection. ***Result:*** the Parameters page appears:  Link parameters Interface: ISDN_backup ISP profile: ISDN User parameters Username: testuser Password: •••• ISDN parameters Dial number: 00329528995 Link type: Dialup 64 Kbps
5	Fill in the username and password for the connection, as well as the dial-in number. Also select the link type. Click **Apply**.
6	Click **Routing**. ***Result:*** the Routing page appears:.  Routing parameters Destination: 0.0.0.0/0 Label:
7	If necessary, fill in the destination and a label. Click **Apply**.

Step	Action
8	Click **Other**. ***Result:*** the Other page appears:  Other parameters Mode: On-Demand Idle time limit: 180 Authentication: Auto Local IP: Remote IP: Primary DNS: Secondary DNS:
9	Select the Mode (**On-Demand** or **Always On**)
10	Fill in the idle time limit. If the connection is On-Demand, and the connection is idle for this amount of time (i.e. no traffic), the connection shuts down. The other values are automatically retrieved when the PPP connection is established.

You cannot enable Callback via the Web interface. For this, you must use CLI. If you do not enable it, the SpeedTouch™ will establish the ISDN connection over which the PPP connection is made.

Via CLI

Use the following command sequence to configure the ISDN dial-in connection via CLI:

```
[isdn]=>ifconfig
intf                    number                  mlppp
BODstart                BODend                  mode
callback                group
[isdn]=>ifconfig
intf = buisdn
[number] = 025292222
[mlppp] =
disabled                enabled
[mlppp] = disabled
[BODstart] = 40
[BODend] = 38
[mode] = dialout
[callback] =
disabled                enabled
[callback] = disabled
[group] = empty
:isdn ifconfig intf=buisdn mlppp=disabled callback=disabled
[isdn]=>:isdn ifconfig intf=buisdn mlppp=disabled callback=enabled
[isdn]=>saveall
[isdn]=>:ppp
[ppp]=>ifattach intf bu_isdn
```

CLI Parameters:

The table below provides a description of the relevant parameters:

Parameter	Value	Description
intf	text string	name of the ISDN interface
number	numeric	Dial-in number for the ISDN line
mlppp	**enabled** or **disabled**	Enable or disable multilink ppp. This means that the ppp can be established over 1 or 2 ISDN B links (64 kbps), thus creating a bandwidth of either 64 or 128 kbps
BODStart	Numerical (in kbps) Default: 40	If multilink ppp is enabled and the required bandwidth exceeds this value, a second ISDN B link is used for the ppp connection
BODEnd	Numerical (in kbps) Default: 38	If multilink ppp is enabled and the required for it drops below this value, the second ISDN B link in the ppp connection is dropped.
mode	dialout	SpeedTouch™is set for dialout. This value is mandatory.
callback	**enabled** or **disabled**	Enable or disable callback. Note that the called party must also be set to support callback.

9.4.2 How to Configure the PPP Connection

How to Configure the PPP Connection Via the Web Interface

If you used the Web interface to configure the Dial-In connection, you do not need any additional configuration.

How to Configure the PPP Connection Via CLI

Use the following command sequence to configure the PPP connection via CLI:

```
[ppp]=>ifconfig
intf = bu_isdn
[dest] = buisdn
[user] = cpesit@rednet
[password] =
[pcomp] = disabled
[accomp] = enabled
[trace] = disabled
[auth] = auto
[restart] = enabled
[retryinterval] = 10
[passive] = disabled
[silent] = disabled
[echo] = enabled
[mru] = 1500
[laddr] =
[raddr] =
[netmask] =
[format] =
[format] = none
[pool] =
[savepwd] = enabled
[demanddial] = enabled
[doddelay] = 30
[primdns] =
[secdns] =
[dnsmetric] =
[idletime] = 45
[idletrigger] = Tx
[unnumbered] = disabled
:ppp ifconfig intf=bu_isdn format=none
[ppp]=>
```

CLI Parameters: The table below provides a description of the relevant parameters. Do not alter the default value of the parameters not shown in this table:

Parameter	Value	Description
intf	text string	name of the PPP interface
dest	text string	name of the ISDN interface on which the PPP connection is built
user	text string	Username needed for the PPP connection
password	text string	Password needed for the PPP connection
auth	**pap**, **chap** or **auto**	Sets the authentication protocol
restart	**enabled** or **disabled**	Enable or disable the retry function. This means that the system will try again if establishing the link fails.
retryinterval	numeric	If the connection fails, and restart is enabled, the system will retry establishing the connection after this interval.
passive	**enabled** or **disabled**	Enable or disable passive mode
silent	**enabled** or **disabled**	Enable or diable silent mode
echo	**enabled** or **disabled**	Enable or disable echo
mru	numeric	
ladrress	IP address	Local IP address of the PPP connection. This is completed automatically when establishing the connection. Do not fill it in manually.
radress	IP address	Remote IP address of the PPP connection. This is completed automatically when establishing the connection. Do not fill it in manually.
netmask	Format depends on the format setting	Netmask for the ppp connection. This is completed automatically when establishing the connection. Do not fill it in manually.
format	**cidr**, **dotted** or **none**	Set the format of the netmask to cidr or dotted , or use no netmask.
savepwd	**enabled** or **disabled**	Save the pasword. After establishing the ppp link for the first time, you no longer need to provide it for subsequent connections.

Parameter	Value	Description
demanddial	**enabled** or **disabled**	Enable or disable dial-on-demand (DoD). This means that the system will engage the ISDN backup if the DSL line fils
doddelay	numeric (in s) Default: 120	Delay during which DoD is disengaged; This interval is meant to allow the DSL line time to synchronize
primdns	ip address	IP address of the primary dns server
secdns	ip address	IP address of the secondary dns server
idletime	numeric	If the connection is idle for this amount of time, the link is disconnected
idletrigger	Rx, Tx or RxTx	Consider the link as being idle if no traffic is received (Rx), sent (Tx) or neither sent nor received (RxTx)

9.5 ISDN Remote CAPI

About Remote CAPI

Using RemoteCAPI, the ISDN interface of the SpeedTouch™ can be used by PC applications that typically need an ISDN board integrated into the PC.

The Remote CAPI function only works with PC applications using the Rcapi.dll driver e.g. RVS COM.

About RVS COM

RVS COM is an application that allows you to use voice based services such as:

- sending and receiving faxes
- sending and receiving sms
- PC Answering machine with auto-attendant

It features an address manager and Outlook integration.

How to Install Remote CAPI

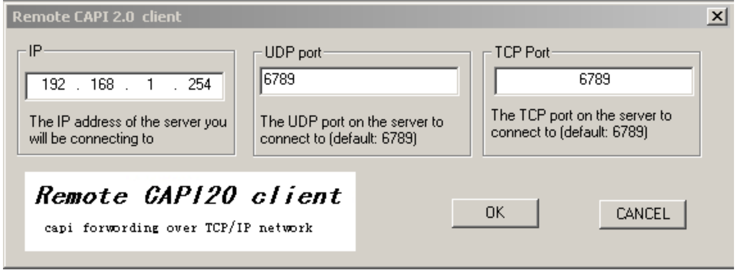
Proceed as follows:

Step	Action
1	Delete the following file on your pc: **C:\windows\system32\capi2032.dll**
2	Copy the file **rcapi.dll** : ▶ from the subfolder **Remote_CAPI** on the installation disk ▶ to the following location on your PC: **C:\windows\system32**
3	Rename the file Rcapi you just copied to **capi2032.dll.**
4	Run **rcapi.exe** located on the installation disk in the subfolder **Remote_CAPI** .

How to Configure the Remote CAPI Client

The above installation procedure adds the Remote CAP20 Client application to your system. You can access it via the **Control Panel**.

Proceed as follows to configure this client:

Step	Action
1	Use the Control Panel to start the Remote CAP20 Client application:  Remote CAPI 2.0 client IP: 192 . 168 . 1 . 254 The IP address of the server you will be connecting to UDP port: 6789 The UDP port on the server to connect to (default: 6789) TCP Port: 6789 The TCP port on the server to connect to (default: 6789) Remote CAPI20 client capi forwarding over TCP/IP network
2	In the IP box, enter the IP address of the SpeedTouch™ (192.168.1.254).
3	In the UDP Port box, enter the UDP port if necessary(default is 6789).
4	In the TCP Port box, enter the TCP port if necessary (default is 6789).

How to Configure Remote CAPI via the Web interface

Prerequisite:

You need to have RVS Communication Center or any other software that uses the Rcapi driver.

Procedure:

Proceed as follows to enable Remote CAPI via the Web Interface:

Step	Action
1	On the web interface home page, click **Expert**
2	In the navigation pane, click SpeedTouch™
3	Go to SpeedTouch™ **Services**
4	Select **Remote CAPI Daemon**

How to Enable Remote CAPI via CLI

Use the following command sequence to enable RCAPI:

```
=>rcapi
[rcapi]=>
[rcapi]=>config
[RCAPID] state: disabled
[rcapi]=>config state enabled
```

10 SpeedTouch™ Monitoring

Overview

This chapter covers the following topics :

10.1 An Introduction to SNMP

Introduction

The Simple Network Management Protocol (SNMP) is a widely spread method for managing networks. Based on a client/server concept, the SNMP server (the SNMP manager) gets or sets the values of objects defined in a Management Information Base (MIB) kept by the SNMP client (the SNMP agent). In addition the SNMP agent is also able to autonomously initiate an action by sending a trap to the SNMP manager.

This section describes the SpeedTouch™ SNMP implementation and how to use it.

SNMP in the SpeedTouch™

SNMP has become the de-facto standard for network management. Especially the monitoring aspect has become important: network administrators want to be notified when things go wrong in their network. In addition, to prevent problems, they also want to be able to do network load and trend analysis.

SNMP allows the user to access data about the SpeedTouch™ as defined in several MIBs. This way the SpeedTouch™ can perfectly fit in a managed network, monitored by SNMP.

Depending on the type, the SpeedTouch™ supports SNMP V1or SNMP V1, V2 and V3 simultanseously.

Overview

This section covers the following topics:

10.1.1 Basic Concepts

Management Information Base

The Management Information Base, or MIB, is a tree-like structure containing SNMP objects, instances of these objects and their corresponding values. Parts of this tree have been standardized, other parts may be specific to a device.

For the SpeedTouch™ a set of MIBs is provided on the Setup CD, some being identical to the standard MIBs, others specifically made for the SpeedTouch™ .

The available data covers statistics of the traffic through an interface, errors and setup information. For details of what information is available consult the MIB definitions at "10.1.2 MIBs Explained." on page 136.

Basic Commands

SNMP has two basic commands:

- ***Get:*** gets the value of a specific parameter in a specific MIB.
- ***Set:*** sets the value of a specific parameter in a specific MIB.

Traps

Traps are SNMP notification messages sent from the SpeedTouch™ to a manager. It is possible to configure where the traps are sent and which traps are sent.

Community Names

Reading MIBs is harmless. However, some MIBs also contain sensitive security parameters. Reading these parameters (get) may provide the user with information he should not have access to.

Writing to a MIB (set) can have severe consequences. Therefore, as a security measure, it is not possible to set any behavior changing objects using SNMP.

Furthermore, SNMP offers a possibility to restrict access to the SNMP MIBs by means of SNMP 'Community Names'.

To have specific kinds of access to the SNMP MIBs, the SNMP manager has to know the correct Community Name. A Community Name serves as password and authentication. On agent-side, a community name is associated with a specific MIB-view (which MIB objects can be seen by a manager using that community name) and an access policy (read-only or read-write).

By default, the SpeedTouch™ uses the default SNMP Community name for read only (public). For read/write, no community name is assigned. It is recommended however that the user should change the default community names in a way to improve security.

In a saved configuration file (user.ini, etc.) the Community names are encrypted to ensure confidentiality.

Simultaneous SNMP Version Support

The SpeedTouch™ simultaneously supports SNMP V1, V2 and V3. This means that it can handle messages from all three versions. The system forwards the message to the appropriate subsystem based on the version indicator in the SNMP message.

10.1.2 MIBs Explained.

Introduction

As mentioned in " Management Information Base" on page 135 both the SpeedTouch™ SNMP agent and the SNMP manager rely on Management Information Base (MIB) files containing all relevant SNMP objects.

In the following, all MIBs important for the SpeedTouch™ are described. Additionally some of the most important and/or interesting SNMP counters are shortly highlighted.

Standard MIBs

Following MIBs are common standard MIBs that are relevant to monitoring the SpeedTouch™. All MIB manager implementations should provide these MIBs by default. Updated copies of the MIBs have been provided on the SpeedTouch™ Setup CD. It is advised to load the copies provided on the SpeedTouch™ Setup CD to your SNMP manager, instead of using the standard MIBs included with your SNMP manager.

- RFC1213 MIB-II
  MIB-II is defined by IETF Full Standards RFC1213, RFC 2011, RFC 2012 and RFC 2013 and is the fundamental MIB for TCP/IP based Internet, describing objects available from devices which run the Internet suite of protocols. The MIB is fundamental to SNMP and is referenced by many other MIB modules. It contains management information and statistics on the IP, ICMP, TCP, and UDP protocols.
- RFC2863 IF-MIB
  The IF-MIB is an extension and replacement of the interface table in MIB-II. It contains statistics on the number of bytes and packets transported across the represented interfaces, including errors.
- System MIB (Enterprise specific branch MIB)
  This required MIB is for administrative use by the other MIBs only. It provides the object IDs (OID) from the SpeedTouch™ specific MIBs and defines the Enterprise specific object identifier.
- RFC1493 Bridge MIB
  The Bridge-MIB contains management information on the Bridge port(s). It contains statistics on, for example, alignment errors, collisions and MAC transition errors.
- IANAifType MIB
  This required MIB module is for administrative use only, by the other MIBs. It defines the IANAifType Textual Convention, and thus the enumerated values of the ifType object defined in MIB-II's ifTable.
- RFC2665 Ethernet-like MIB
  The Ethernet MIB contains management information on the Ethernet interface(s). It contains statistics on, for example, alignment errors, collisions and MAC transition errors.
- RFC2668 MAU MIB
  The Medium Access Unit (MAU) MIB contains management information about medium access units. On SpeedTouch™ devices equipped with the four-port Ethernet switch, four MAU ports are present. The MAU MIB will give details about the type, status and provide statistics of each MAU. It also gives details of the auto negotiation that has taken place on each ethernet port.

Standard MIBs (Continued)

Continued from previous page.

- RFC1213 MIB II
- RFC 2790 Host Resources MIB
  This MIB shows hot resource information such as software builds, CPE date and time-of-day, the total and free amount of Flash Memory and RAM and processor load.
- RFC 2836 Interface MIB
- RFC2851 INET-ADDRESS MIB
  This MIB module defines textual conventions for representing Internet addresses. An Internet address can be an IPv4 address, an IPv6 address or a DNS domain name.
- IPSec-flow-monitor MIB
  This is a MIB Module for monitoring the structure and status of IPSec-based networks. The MIB has been designed to be adopted as an IETF standard. Hence vendor-specific features of the IPSec protocol are excluded from this MIB
- RFC1215 traps MIB
- RFC2925 PING and Trace route MIB
  The SpeedTouch™ contains a powerful embedded Service Level Agreement (SLA) monitoring engine which enables Carriers, ISPs, ASPs, Integrators and Managed Service Providers to monitor and deliver reports to their customers and to be pro-actively aware of network problems that impact application performance, and to solve the problems even before the customer complains. The SpeedTouch™ can be configured to automatically generate active measurement traffic (PING, Trace route) to another IP device (for example another CPE, a web server,...), and collect and aggregate measurement statistics (availability, delay, jitter,...) that shows compliancy to agreed SLAs, The PING and Trace route SNMP MIB allows to fully manage this embedded SLA monitoring engine and achieve easy integration with SLA monitoring network management systems.
- RMON MIB (RFC2819)
  The SpeedTouch™ defines a portion of the MIB for use with network management protocols in TCP/IP-based internets. In particular, it defines objects for managing remote network monitoring devices.This MIB allows custom traps, custom historic tables and extensive Ethernet statistics.
- RFC 3635 Ethernet-like MIB
- RFC 3636 MAU MIB
- IP Tunnel MIB (RFC2667)

MIBs About SNMP

The SpeedTouch™ supports the following MIBs about SNMP:

- RFC3411 SNMP-FRAMEWORK-MIB
- SNMP-COMMUNITY-MIB
- RFC3412 SNMP-MPD-MIB
- RFC3413 SNMP-TARGET-MIB
- RFC3413 SNMP-NOTIFICATION-MIB
- RFC3414 SNMP-USER-BASED-SM-MIB
- RFC3415 SNMP-VIEW-BASED-ACM-MIB
- RFC3417 Transport Mappings for SNMP MIB
- RFC3418 SNMPv2-MIB

ADSL and SHDSL MIBs

Following two MIBs are specific per SpeedTouch™'s DSL variant (ADSL or SHDSL variants). You should only load the appropriate MIB, although loading both will not harm functionality. To retrieve maximum SNMP information it is imperative to use the MIB provided on the SpeedTouch™ Setup CD, and not the one supported (if so) by the SNMP manager.

- RFC2662 ADSL MIB (containing ADSL-LINE-MIB and ADSL-TC-MIB)
  The ADSL MIB is in fact a bundle of three MIBs: the ADSL-LINE-MIB, the ADSL TC- MIB and additionally the PerfHist-TC-MIB. It contains management information about the ADSL line such as Signal-to-Noise Ratio (SNR), output power and attainable bit rate. For using the RFC2662 ADSL MIB, the PerfHist-TC-MIB is required, available on the SpeedTouch™ Setup CD.
- RFC3276 SHDSL MIB
  The SHDSL MIB contains management information about the SHDSL line such as Signal-to-Noise Ratio (SNR), Loop attenuation, PSD regional setting, line rate and line status.

ILMI MIBs

The SpeedTouch™ supports the following ILMI MIBs:

- af-ilmi-065.000
- fb-nm-0122
- fb-nm-0165

ATM MIBs

Following MIBs are specific for the SpeedTouch™ ATM interfaces:

- RFC2515 ATM MIB
  This is the MIB Module for ATM and AAL5-related objects for managing ATM interfaces, ATM virtual links, ATM cross-connects, AAL5 entities, and AAL5 connections.
- RFC2514 ATM-TC-MIB
  This MIB Module provides Textual Conventions and OBJECT-IDENTITY Objects to be used by ATM systems.

10.2 SNMP configuration

About SNMP configuration

There are a few configurable options covering the SNMP functionality. If you require no traps are , the default options suffice to access information in the SpeedTouch™ from the LAN.

Enabling SNMP

By default, the SNMP agent is disabled. Before using or configuring SNMP, you must enable it:

Command Line Interface (CLI)

All the SNMP settings can be changed or viewed using CLI commands. To enter a CLI command from the root, precede it with “:”, and provide the full command path. For more information on these commands, refer to the CLI Command Guide.

Overview

This section covers the following configuration tasks:

Task	See Page
How to Allow Access to the SNMP Agent	140
How to View the System Contact, Name and Location	142
How to Configure the System contact, Name and Location	145
How to Configure SNMPv1	143
How to Force the Source IP Address	146
How to Configure the SNMP Target	147
How to Read SNMP Parameters via the CLI	149
How to View the SNMP Configuration	141
How to Allow Remote SNMP	151
How to Add an SNMP User	152
How to Restrict SNMP Access	157
How to Configure the Traps	158

10.2.1 How to Allow Access to the SNMP Agent

Default Setting

By default, access to the SNMP Agent is disabled. Before you are able to use SNMP, you must enable it.

Command

Use the following command to allow access to the SNMP Agent:

```
:service system modify name=SNMPV3_AGENT state=enabled
```

10.2.2 How to View the SNMP Configuration

About the SNMP Service

The SpeedTouch™ SNMP service controls all SNMP traffic from and towards the SpeedTouch™. By default, no restrictions apply regarding SNMP traffic from and towards the local network. However SNMP traffic from and towards the WAN will be blocked.

Command

Use the following command to view the SNMP configuration:

```
:service system list name SNMPV3_AGENT expand enabled
```

This returns the following output:

```
  Description................ Rx snmp GET, SET and GETNEXT PDUs
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... (administratively) disabled
  Port....................... 161
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List any
  Map List................... 161
  Logging.................... disabled
```

You can the same command to view the SNMPV3 Traps:

```
:service system list name=SNMPV3_TRAPS expand=enabled
```

10.2.3 How to View the System Contact, Name and Location

Command

Use the following CLI command to view the default configuration:

```
{Administrator}[snmp]=>config
```

Default Configuration

The default configuration is as follows:

```
SNMP System Contact      : Service Provider
SNMP System Name         : SpeedTouch 620
SNMP System Location     : Customer Premises
All SNMP traps  : DISABLED
```

10.2.4 How to Configure SNMPv1

Configuring SNMPv1 on the SpeedTouch™

The SpeedTouch™ supports SNMPv3, but is also backwards compatible with SNMPv1. However, you need specific configuration procedures for this. Basically you need to do the following in order to configure SNMPv1:

- Configure the SNMPv1 Client
- If applicable, enable SNMPv1 traps

How to Configure the SNMPv1 Client

Proceed as follows:

Step	Action

1	Create a new community:
	`:snmp community add index=RWCommunity`
	`securityname=RWCommunity`
	`communityname=private`

2	Create a new view:
	`:snmp view add viewname=all`
	`viewtree=iso`
	`type=include`

3	Configure a group with the required access rights to access that view:
	`:snmp group add groupname=test_groupname_write`
	`securitymodel=snmpv1`
	`securitylevel=noAuthNoPriv`
	`readview=all writeview=all notifyview=all`

4	Configure the community to have these group rights
	`:snmp securitytogroup modify securitymodel=snmpv1`
	`securityname=RWCommunity`
	`groupname=test_groupname_write`

5	Allow external access to the SNMP agent: `:service system modify name SNMPV3_AGENT state enabled`

How to Configure the SNMPv1 Traps

Proceed as follows:

Step	Action
1	Create a new target: `:snmp target add name=Test_trap_pc addr=10.0.0.110 taglist=Trap_tag params=Trap_params`
2	Create a notify filter: `:snmp notify add name=trap_notify_test tag=Trap_tag`
3	Configure the target parameters: `:snmp targetparams add paramname=Trap_params mpmodel=v1 securitymodel=snmpv1 securityname=RWCommunity securitylevel=noAuthNoPriv`
4	Enable traps: `:snmp config traps enabled`
5	Allow the traps to be sent to the target: `:service system modify name SNMPV3_TRAPS state enabled`

10.2.5 How to Configure the System contact, Name and Location

Command

You can set the System contact, System Name and the System Location in the MIB II RFC1213. Use the following CLI command to do so:

```
config
[sysContact = <quoted string>]
[sysName = <quoted string>]
[sysLocation = <quoted string>]
[traps <{disabled|enabled}>]
```

Parameters

This command has the following parameters:

Parameter	Value	Description
sysContact	<quoted string>	System Contact
sysName	<quoted string>	System Name
sysLocation	<quoted string>	System Location
traps	**enable** or **disable**	Enable or disable the sending of traps.

10.2.6 How to Force the Source IP Address

About Loopback

The SpeedTouch™ offers the possibility to send SNMP traps to an SNMP manager. This facilitates the monitoring of the network. It is important that the source IP address of the SNMP traps remains the same at all times, so the Network Control Centre knows who is sending the traps.

Making the loopback interface the primary interface of the SpeedTouch™ ensures that all messages leaving the SpeedTouch™ have the loopback interface's IP address as source address. This facilitates monitoring of the device by the Control Centre. This address remains the same even when the SpeedTouch™ has slipped in ISDN fallback WAN connectivity.

How to Assign an IP Address to the Local Loop Interface

Use the following command to assign an IP address to the local loop interface:

```
=>:ip ipadd intf=loop addr=50.60.70.80 addroute=enabled
```

How to Make the Local Loop Address the Primary Address

Use the folllowing commands to make this IP address the primary IP address of the SpeedTouch™:

```
=>:ip ifconfig intf=loop primary=enabled
=>:ip ipconfig addr=50.60.70.80 primary=enabled
```

The first command sets the loopback interface as primary interface of the SpeedTouch™. The second command sets the IP address as primary address of the loopback interface (instead of the default 127.0.0.0)

How the View the Loopback Configuration

Use the following command to view the loopback configuration:

```
=>:ip iflist expand=enabled
Interface    Group  MTU   RX     TX     TX-Drop  Status HW-address
0  loop      local  65535 31438  33137   0       [UP]   00:0e:50:5a:dd:
0f
      BRHW-address  : ff:ff:ff:ff:ff:ff
      RX unicastpkts: 335     brcastpkts : 0       
      TX unicastpkts: 502     brcastpkts : 0       droppkts:0
      Oper state    : UP      Admin State: UP
      Flags         : PRIMARY LOOP INTERNAL
```

10.2.7 How to Configure the SNMP Target

About the SNMP Target

The SNMP target is the destination for the SNMP traps, e.g an SNMP Manager. You can add up to nine different SNMP manager destination addresses, using the **`:snmp target add`** command.

Command

Use the following command to add an SNMP target:

```
add name = <string> addr = <ip-address> [port = <number{0-65535}>]
    [mask = <ip-mask(dotted or cidr)>]
    [timeout = <number{0-2147483647}>] [retries = <number{0-255}>]
    [maxpertime = <number{0-255}>] [windowtime = <number{0-3600}>]
    [taglist = <quoted string>] [params = <{V1Params}>]
    [storage = <{other|volatile|nonVolatile|permanent|readOnly}>]
    [mms = <number{484-65535}>]
```

Parameters:

The command has the following parameters:

Parameter	Value	Description
name	<string>	Name of this target.
addr	<ip-address>	IP address of the target
port	<number{0-65535}>	Target port number. ***Default***: 162.
mask	<ip-mask(dotted or cidr)>	IP bitfield mask, This is only applicable in case of source address checking.
timeout	<number{0-2147483647}>	SNMP expected maximum round trip time (in hundredths seconds) for communicating with the target address.
retries	<number{0-255}>	Number of times the snmp entity will attempt to retransmit an inform when no response is received.
maxpertime	<number{0-255}>	Maximum number of notifications that can be sent within a limited time base, defined as window time.
windowtime	<number{0-3600}>	Time base (in seconds) that limits the number of notifications. A window time of 0 deactivates the trap rate limitation mechanism.

Parameter	Value	Description
taglist	<quoted string>	String containing one or more tags. A tag corresponds to a tag in the usmUserTable, the snmpCommunityTable or the snmpNotifyTable.
params	<{V1Params}>	String used to select a set of entries in the snmpTargetParamsTable.
storage	other,volatile, nonVolatile, permanent or readOnly	Storage type.
mms	<number{484-65535}>	Maximum message size that can be retransmitted without risk of fragmentation.

Use of defaults

If you do not specify a parameter, default values are used. The key parameters are **name** and **addr**.

How to Delete a Destination

To delete a manager destination, use:

```
{Administrator}[snmp]=>target delete name=<target_name>
```

10.2.8 How to Read SNMP Parameters via the CLI

About Reading SNMP Parameters

The **snmp get**, **snmp getNext** and **snmp walk** commands allow you to Get, GetNext or Walk SNMP settings and/or counters from a MIB object. The MIB object is identified by the MIB object's ID. This is only used for ebugging purposes.

SNMP get

Use the following CLI command to read a specific object ID:

```
{Administrator}[snmp]=>get [objectid = <string>]
```

With [objectID] the MIB ID of the object. This must include the instance which is 0 for scalar objects e.g. ***1.3.6.1.2.1.1.1.0*** or ***sysDescription.0***

Example

To update the traffic load, use:

```
{Administrator}[snmp]=>1.3.6.1.2.1.10.94.1.1.7.1.12.601
VB_counter    .1.3.6.1.2.1.10.94.1.1.7.1.12.601   84275
{Administrator}[snmp]=>1.3.6.1.2.1.10.94.1.1.7.1.12.601
VB_counter    .1.3.6.1.2.1.10.94.1.1.7.1.12.601   84277
{Administrator}[snmp]=>1.3.6.1.2.1.10.94.1.1.7.1.12.601
VB_counter    .1.3.6.1.2.1.10.94.1.1.7.1.12.601   84278
{Administrator}[snmp]=>1.3.6.1.2.1.10.94.1.1.7.1.12.601
VB_counter    .1.3.6.1.2.1.10.94.1.1.7.1.12.601   84279
```

SNMP getnext

Use the following CLI command to get the next available object ID:

```
{Administrator}[snmp]=>get [objectid = <string>]
```

With [objectid] the object identity to getNext from.

Example:

To get the iP address table, use:

```
{Administrator}[snmp]getnext objectid .1.3.6.1.2.1.4.20.1.1
VB_ipAdr      .1.3.6.1.2.1.4.20.1.1.127.0.0.1     127.0.0.1
{Administrator}[snmp]getnext
VB_ipAdr      .1.3.6.1.2.1.4.20.1.1.192.168.1.254 192.168.1.254
=>
```

The object ID is only required the first time. The second time a getnext is executed, the SpeedTouch™ will start looking from the previous object ID

SNMP walk

Use the following CLI command to skim through a MIB object:

```
{Administrator}[snmp]=> walk [objectid = <string>]
```

Example:

For example, objectid .1.3.6.1.2.1.1, identifies the SpeedTouch™ MIB system group. The example below skims through this MIB object:

```
{Administrator}[snmp]=>walk ObjectId=1.3.6.1.2.1.1
VB_octetStr .1.3.6.1.2.1.1.1.0 SpeedTouch 620
VB_objId .1.3.6.1.2.1.1.2.0 .1.3.6.1.4.1.637.61.2
VB_timeTicks .1.3.6.1.2.1.1.3.0 9962843
VB_octetStr .1.3.6.1.2.1.1.4.0 Service Provider
VB_octetStr .1.3.6.1.2.1.1.5.0 SpeedTouch 620
VB_octetStr .1.3.6.1.2.1.1.6.0 Customer Premises
VB_integer .1.3.6.1.2.1.1.7.0 72
```

10.2.9 How to Allow Remote SNMP

About Remote SNMP

It is possible to allow to allow a remote SNMP manager to monitor the SpeedTouch™. To do this, add the WAN interface to the service access list.

Command

Use the following command:

```
=>service system ifadd name SNMPV3_AGENT group wan
```

Receiving Traps

To allow the remote SNMP manager to receive SNMP traps generated by the SpeedTouch™, no extra configuration is necessary. It is, however, possible to configure which traps are sent to a manager. For more information, refer to “10.2.12 How to Configure the Traps” on page 158.

You can also configure authentication for remote access to SNMP. For more information, refer to “10.2.11 How to Restrict SNMP Access” on page 157.

10.2.10 How to Add an SNMP User

About SNMP Users

SNMP Users allow you to determine which MIBs a specific user is allowed to view or change. This is done by adding a user to a user group. This user group determines the user’s access to the MIBs.

Limiting MIB Access

You can limit the MIBs visible within a defined Read-Only (RO) or Read/Write (RW) Community. To do so, you need to do the following:

- Define the view with the MIBs you want visible
- Define a group to determine the read/write/notify access
- Define a user and add the user to the group, giving that user access to that view

Users and Communities

The use of ***Users, Views and Groups*** is defined in SNMPv3. SNMP v1 and SNMPv2 however, use ***communities***. In SNMPv1, “users” are represented as communities. Therefore, they are not visible with the **`:snmp user list`** command. However, you can still view them using the **`:snmp securitytogroup list`** command.

SNMP User Groups

There are 7 pre-defined user groups available for SNMP. These levels exist in the MLP structure. However, since SNMP does not need this many groups, some of them have the same default access rights. Below is an overview:

Group	Description
User	This group has read access to the following subtrees: - 1.3.6.1.2.1.1 System - 1.3.6.1.2.1.11 SNMP - 1.3.6.1.6.3.10.2.1 SNMP Engine - 1.3.6.1.6.3.11.2.1 SNMP MD Stats - 1.3.6.1.6.3.15.1.1 Stats This group has no CLI access.

Group	Description
Power User	Has the same rights as User, plus additional read access to the following subtrees: ▸ 1.3.6.1.2.1.2: INTERFACES ▸ 1.3.6.1.2.1.4: IP ▸ 1.3.6.1.2.1.5: ICMP ▸ 1.3.6.1.2.1.6: TCP ▸ 1.3.6.1.2.1.7: UDP ▸ 1.3.6.1.2.1.10: ETHER-like (ADSL .1.10.94; HDSL .1.10.48) ▸ 1.3.6.1.2.1.16: RMON ▸ 1.3.6.1.2.1.17: BRIDGE ▸ 1.3.6.1.2.1.26: MAU ▸ 1.3.6.1.2.6.3.10.2: SNMPv2 Framework ▸ 1.3.6.1.2.1.16: RMON ▸ 1.3.6.1.2.1.80: PING ▸ 1.3.6.1.2.1.81: TRACEROUTE This group can use CLI for trap configuration.
LAN Admin	Has the same default rights as Power User.
WAN Admin	This group has the same read rights as User, plus additional read access to: ▸ 1.3.6.1.2.1.16: RMON ▸ 1.3.6.1.2.1.80: PING ▸ 1.3.6.1.2.1.81: TRACEROUTE This group has full CLI access
Administrator	Full access rights to all subtrees
TechAdmin	Has the same default rights as Administrator
Super User	Has the same default rights as Administrator

Case

As an example, we will create the following:

- A new user group called “Grayskull”
- A new user called “Musclor”
- A new view called “View_All”

The user has full rights (read, write and notification) to all MIBs.

Procedure

The general flow of user configuration is as follows: you create a view, which is basically a set of MIB access rights. after that, you create a user group with access to that view. Then, you create a user and add it to the group. Thus, the user will have the groups MIB access and have tha access rights you defined in the view.

Proceed as follows:

Step	Action
1	Use the following command to create a new view: `:snmp view add viewname=View_All viewtree=iso type=include`
2	Use the following command to create a new group with read-, write- and notification access to that view: `:snmp group add groupname=Grayskull securitymodel=usm securitylevel=noAuthNoPriv readview=View_all writeview=View_all notifyview=View_all`
3	Use the following command to create a new user: `:snmp user add securityname=Musclor snmpengineID=localSnmpID authprot=usmNoAuthProtocol privprot=usmNoPrivProtocol`
4	Use the following command to add the user to the group: `:snmp securitytogroup add securitymodel=usm securityname=Musclor groupname=Grayskull`
5	Use the following command to enable the SNMP service if necessary: `:service system modify name SNMPV3_AGENT state enabled`

For a more detailed description of these commands and their parameters, refer to the CLI command guide.

How to View the Users

Use the following command to view the users:

```
:snmp user list
```

This results in the following output:

```
securityname=SU snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
securityname=user snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
securityname=LanAdmin snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
securityname=WanAdmin snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
securityname=PowerUser snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
securityname=TechAdmin snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
securityname=Administrator snmpengineID=localSnmpID
        authprot=usmNoAuthProtocol
        privprot=usmNoPrivProtocol
        targettag=
        storage=nonVolatile
```

How to View the Communities

Use the following command to view the communities:

```
:snmp securiytogroup list
```

This results in the following output:

```
securitymodel=snmpv1 securityname=ROCommunity groupname=V1ROGroup
        storage=nonVolatile
securitymodel=snmpv1 securityname=RWCommunity groupname=V1RWGroup
        storage=nonVolatile
securitymodel=usm securityname=SU groupname=SU_Group
        storage=nonVolatile
securitymodel=usm securityname=user groupname=Basic_Group
        storage=nonVolatile
securitymodel=usm securityname=LanAdmin groupname=Extended_Group
        storage=nonVolatile
securitymodel=usm securityname=WanAdmin groupname=WanAdmin_Group
        storage=nonVolatile
securitymodel=usm securityname=PowerUser groupname=Extended_Group
        storage=nonVolatile
securitymodel=usm securityname=TechAdmin groupname=SU_Group
        storage=nonVolatile
securitymodel=usm securityname=Administrator groupname=SU_Group
        storage=nonVolatile
```

For backwards compatibility purposes, some defaults were added.

10.2.11 How to Restrict SNMP Access

SNMP Access Restriction

You can restrict SNMP Access so that it is accepted from specific IP addresses only. To do this, add the IP address or an IP Address range to the access list for the service SNMPV3_Agent. Note that this also covers SNMPv1.

You can also restrict access to specific interface groups such as WAN, LAN, DMZ,...

How to Add an IP Address to the Access List

Use the following command:

```
:service system ipadd name=SNMPV3_AGENT ip=<ip-range>
```

with **`<ip-range>`** either the IP address or the range of IP addresses from which SNMP access should be allowed.

How to Add an Interface Group to the Access List

Use the following command:

```
:service system ifadd name=SNMPV3_AGENT group =
<{wan|local|lan|tunnel|dmz|guest} or number>
```

The **`<group>`** parameter determines which interface group has access to the SNMP service.

How to View the Configuration

Use the following command to view the configuration:

```
:service system list name SNMPV3_AGENT expand enabled
```

This results in the following output:

```
Idx Name             Protocol         SrcPort  DstPort  Group

-----------------------------------------------------------------------
  1 SNMPV3_AGENT     udp                       161

  Description................ Rx snmp GET, SET and GETNEXT PDUs
  Properties................. server
  Attributes................. state port aclip aclif aclifgroup map log
  User Managed Attributes.... state aclip aclif aclifgroup map log
  Attribute Values :
  State...................... (administratively) disabled
  Port....................... 161
  Ip Access List............. any
  Interface Access List...... any
  Interface Group Access List any
  Map List................... 161
  Logging.................... disabled
```

10.2.12 How to Configure the Traps

Procedure

In order to configure which traps are sent where, you need to:

Step	Action
1	Set the message handling parameters
2	Create a notify filter
3	Create a notify profile using that filter
4	Create notify tags
5	Create a destination for the traps
6	Enable traps

If you simply want all tags to be sent, steps 2, 3 and 4 are not necessary.

How to Set the Message Handling Parameters

Use the **:snmp targetparams add** command.

Example:

```
:snmp targetparams add paramname=Trap_params mpmodel=v1
securitymodel=snmpv1 securityname=RWCommunity
securitylevel=noAuthNoPriv
```

How to Create a Notify Filter

Use the **:snmp notifyfilter add** command.

Example:

```
:snmp notifyfilter add profilename=Trap_profile subtree=iso
```

How to Create a Notify Profile Using that Filter

Use the **:snmp notifyprofile add** command.

Example:

```
:snmp notifyprofile add paramname=Trap_params profilename=Trap_profile
```

How to Create NotifyTags

Use the **:snmp notify add** command.

Example:

```
:snmp notify add name=trap_notify_test tag=Trap_tag
```

How to Create a Destination for theTraps

Use the **:snmp target add** command.

Example:

```
:snmp target add name=Test_trap_pc addr=10.0.0.110 taglist=Trap_tag
params=Trap_params
```

How to Enable Traps

Use the following command sequence:

```
:snmp config traps enabled
:service system modify name SNMPV3_TRAPS state enabled
```

More Information

For more information about these commands, refer to the CLI Command Guide

10.3 The SpeedTouch™ Syslog

Introduction

Syslog is a basic, uncomplicated, yet powerful method to administer a network device as the SpeedTouch™. By generating syslog messages, the SpeedTouch™ is able to inform network managers about the general state of the device and to record events which can be retrieved for later analysis and diagnosis.

This chapter describes how to use the SpeedTouch™ Syslog deamon.

WELF Compliancy

All syslog messages are compliant with Webtrend Extended Log Format (WELF) formatting.

The SNMP service

Next to Syslog the SpeedTouch™ supports SNMP for extended device management.

For more information on SNMP see “10.1 An Introduction to SNMP” on page 134.

The SNTP client

Because it is not only important to know which events occurred, but also when , the SpeedTouch™ features an integrated real-time clock. This clock supports SNTP (Simple Network Time Protocol) synchronization with one of Internet's many relating NTP servers.

For more information on the configuration and use of the SpeedTouch™ SNTP client, see “6.2 The SpeedTouch™ SNTP Client” on page 56.

10.3.1 The SpeedTouch™ Syslog Daemon

What is Syslog

Syslog is a message generating tool that can be implemented in any network device. The intention of the tool is to send messages over the network indicating status, actions, possible problems, etc. from the device.

Although the syslog protocol is widely spread and evolved to a de-facto standard, only recently some first Internet drafts and informational Request For Comments (RFC) became available to describe the existing protocol and some proposal for enhancements.

The SpeedTouch™ Syslog daemon

For the SpeedTouch™, the syslog daemon conforms to the proposed standards as much as possible.

Syslog messages consist of a message header called Priority and a message body containing the message itself.

Via the Priority identification it is possible to determine the severity and facility of a message, hence it allows to diversify the messages according to their importance. Each severity and each facility can be identified by a numerical value. The sum of the numerical values of the severity and the facility indicates (the numerical value of) the priority.

In the following all severities and facilities are listed with respective notation and numerical values.

Syslog priority severities

Following priority severities are possible for a syslog message generated by the SpeedTouch™. The severities are listed by descending priority:

Severity	Notation	Code
Emergency conditions, system unusable	emerg	0
Alert conditions, immediate action is needed	alert	1
Critical conditions	crit	2
Error conditions	err	3
Warning conditions	warning	4
Normal but significant conditions	notice	5
Informational messages	info	6
Debug-level messages	debug	7

Syslog priority facilities

Following priority facilities are possible for a syslog message generated by the SpeedTouch™. The facilities are listed by descending priority:

Priority	Notation	Code
Kernel messages	kern	0
User-level messages	user	8
Mail system	mail	16
System daemons	deamon	24
Authorization messages	auth	32
Syslog daemon messages	syslog	40
Line Printer subsystem	Lpr	48
Network news subsystem	news	56
UUCP subsystem	uucp	64
Clock daemon	cron	72
Security messages	security	80
FTP daemon	ftp	88
NTP subsystem	ntp	96
Log audit	audit	104
Log alert	alert	112
Clock daemon	clock	120
Local use messages	local0 local1 local2 local3 local4 local5 local6 local7	128 136 144 152 160 168 176 184

Syslog message bodies

The SpeedTouch™ syslog daemon is internally responsible for collecting and administering messages generated by one or more of its subsystems. Following of the SpeedTouch™ subsystems are able to trigger a message:

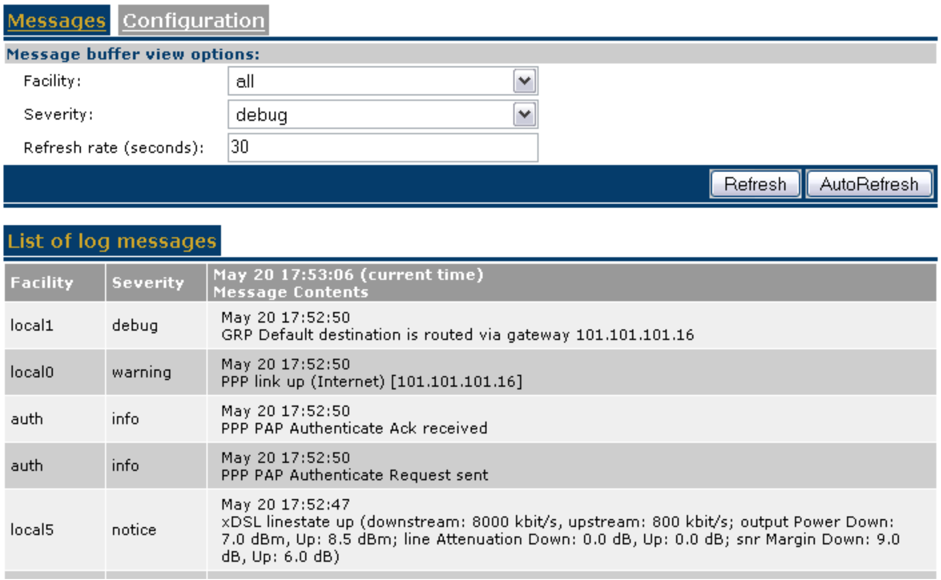
- Auto-PVC module
- Configuration module
- DHCP Client module
- DHCP Relay module
- DHCP server module
- Firewall module
- HTTP module
- IPSec VPN module
- Linestate module
- Login authentication module
- NAPT module
- PPP dial-in client module
- Relayed PPPoA (PPTP) module
- BGP/OSPF/RIP module
- Routing module
- SIP multi-media PBX module
- SNTP client module
- SpeedTouch™ kernel module
- System software module
- UPnP module.

Depending on the triggering event, fixed messages are generated. For a complete listing of the possible syslog messages, see “SpeedTouch™ CLI Reference Guide”.

10.3.2 Syslog via the Web Interface

The Syslog web page

The SpeedTouch™ Syslog web page allows users to view all or a selection of syslog messages the SpeedTouch™ has generated. Browse to the SpeedTouch™ **Expert** pages and open the Syslog pages via **Home > SpeedTouch > Syslog**.



Message buffer view options:

Facility:	all
Severity:	debug
Refresh rate (seconds):	30

List of log messages

Facility	Severity	May 20 17:53:06 (current time) Message Contents
local1	debug	May 20 17:52:50 GRP Default destination is routed via gateway 101.101.101.16
local0	warning	May 20 17:52:50 PPP link up (Internet) [101.101.101.16]
auth	info	May 20 17:52:50 PPP PAP Authenticate Ack received
auth	info	May 20 17:52:50 PPP PAP Authenticate Request sent
local5	notice	May 20 17:52:47 xDSL linestate up (downstream: 8000 kbit/s, upstream: 800 kbit/s; output Power Down: 7.0 dBm, Up: 8.5 dBm; line Attenuation Down: 0.0 dB, Up: 0.0 dB; snr Margin Down: 9.0 dB, Up: 6.0 dB)

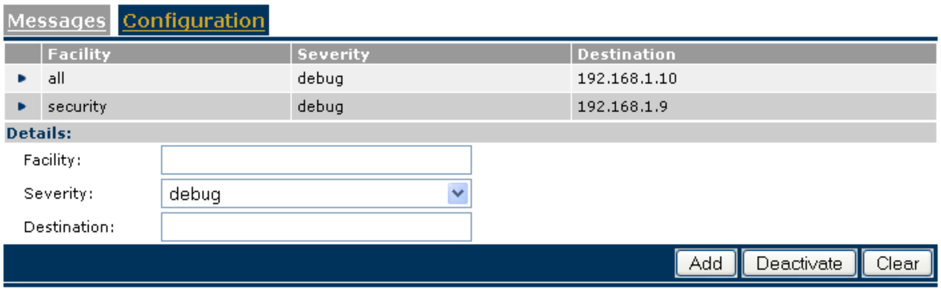
The advantage of offering the syslog Web Interface is that any authenticated user is able to browse the SpeedTouch™ Web Interface. The **Syslog** page can be used to view the latest event loggings, without the need for additional syslog software.

Syslog configuration

Via the SpeedTouch™ Syslog page, you can also configure the SpeedTouch™ syslog daemon to send syslog messages to one or more particular host IP addresses.

This allows dedicated syslog software on the host to collect SpeedTouch™syslog messages for immediate notification, future reference, and event archiving.

On the SpeedTouch™ Syslog page, select the Configuration tab:



	Facility	Severity	Destination
▸	all	debug	192.168.1.10
▸	security	debug	192.168.1.9

Details:

Facility:

Severity: debug

Destination:

The table allows you to overview the hosts configured to receive syslog messages generated by the SpeedTouch™.

To add a host, you must type one or more (comma-separated) priority facility (type **all** to send all facilities), select a priority severity, specify the host's IP address and click **Add**.

To enable forwarding of syslog messages to external hosts, select **Activate**. In case syslog forwarding is enabled, you can disable all syslog forwarding again by clicking **Deactivate**. For example, in the figure shown above, forwarding of Syslog messages is enabled (as the **Deactivate** button is shown).

10.3.3 Syslog via the CLI

The Syslog CLI command group

The SpeedTouch™ CLI syslog command group basically provides the same possibilities as provided on the SpeedTouch™ syslog web page:

```
=>:syslog help
Following commands are available:

config          : Set/Display configuration
ruleadd         : Add a new rule to the syslog configuration.
ruledelete      : Delete a rule in the syslog configuration
flush           : Flushes syslog rules.
list            : List the current syslog configuration

Following command groups are available :

msgbuf

=>:syslog msgbuf help
Following commands are available :

show            : Show messages in the syslog message buffer.
send            : Send messages to remote syslog server.
flush           : Flush all messages in syslog message buffer.

=>
```

To display a listing of all generated syslog messages, use following CLI command:

```
=>:syslog msgbuf show

<173> May 20 17:52:47 xDSL linestate up (downstream: 8000 kbit/s,
upstream: 800 kbit/s; output Power Down: 7.0 dBm, Up: 8.5 dBm; line
Attenuation Down: 0.0 dB, Up: 0.0 dB; snr Margin Down: 9.0 dB, Up: 6.0
dB)
<38> May 20 17:52:50 PPP PAP Authenticate Request sent
<38> May 20 17:52:50 PPP PAP Authenticate Ack received
<132> May 20 17:52:50 PPP link up (Internet) [101.101.101.16]

<143> May 20 17:52:50 GRP Default destination is routed via gateway
101.101.101.16
<37> May 20 18:07:53 LOGIN User Administrator logged in on CONSOLE

=>
```

For more information on the syntax and use of the CLI syslog command group commands, see “SpeedTouch™ CLI Reference Guide”.

10.3.4 Remote Syslog Notification

Introduction

The SpeedTouch™ can be configured to send all or a selection of generated syslog messages to a host on the local or a remote network IP address.
This section describes how to configure the SpeedTouch™ syslog daemon to send messages to a particular host.

Preconditions

The host to send the syslog messages to, should have syslog daemon software installed for capturing the messages, and a known, fixed IP address.

Syslog host on the local network

By default, no traffic restrictions apply for the local network. Simply add a syslog rule via the SpeedTouch™ syslog configuration web page or the CLI. Specify the IP address of the host, and optionally refine the set of syslog messages to send.

You can specify one or a selection of (comma-separated) or all facilities.
Specifying a severity actually means to send syslog messages with a severity as specified, and all messages with a higher severity.
For a priority listing see “ Syslog priority severities”.

The following example shows the configuration via the CLI for a syslog host on the local network with fixed IP address 192.168.1.10 to send all generated syslog messages (all facilities, with severity debug and higher) to:

```
=>:syslog ruleadd fac=all sev=debug dest=192.168.1.10
=>saveall
=>
```

Syslog host on a remote network

The default SYSLOG SpeedTouch™ service is configured to allow traffic from the SpeedTouch™ syslog daemon towards the WAN:

```
=>:service system list name=SYSLOG expand=enabled
Idx Name                Protocol         SrcPort  DstPort  Group       Sta
te
-----------------------------------------------------------------------
  1 SYSLOG              udp                       514                  ena
bled
                 Description................ System Logging Events
                 Properties................. client
                 Managed parameters......... state srcip
                 Source Ip Selection........ auto
                 Interface Access List...... any
                 Ip Access List............. any
=>
```

Therefore, no additional configuration is needed in case you want to configure a syslog host on a remote network.
The example below shows the syslog rule to add for a syslog host with IP address 192.6.11.1. The local syslog host (192.168.1.10), configured before (See “ Syslog host on the local network”) will receive all generated syslog messages; the remote syslog host only receives syslog messages from all facilities with severity warning, error, critical, alert or emergency (all facilities, with severity warning and higher):

```
=>:syslog ruleadd fac=all sev=debug dest=192.6.11.1
=>:syslog list
1: all.debug                192.6.11.1
2: all.debug                192.168.1.10
=>
```

10.4 SpeedTouch™ Identification on AWS

Information Exchange

The SpeedTouch™ exchanges some variables after the DSL synchronisation with the DSLAM (Digital Subscriber Line Access Multiplexer). These variables are hard-coded into the SpeedTouch™.

The following variables are exchanged:

- Chipset vendor ID:
  For example the SpeedTouch™620 chipset vendor ID will be “BCM”
- Software version number:
  The software version number is retrieved from the ENV variables _PRODNUMBER + _BUILD.
  For example the SpeedTouch™620 software version number will be “620 5.3.2”.
- Serial number:
  The Serial number is retrieved from the ENV variables BOARDSERIAL_NBR + _PRL.
  For example the SpeedTouch™620 Serial number can be “CP0452JT02D DSLBB620AA”.
- Self test result:
  The self test result will be retrieved from an ENV variable.

How to Enable/Disable the Information Exchange

It is possible to disable (and re-enable) the sending of the SpeedTouch™ information using the ***adsl config*** CLI command:

```
{Administrator}[adsl]=>config
[opermode = <{multimode|multi_adsl2|multi_readsl2| multi_adsl2plus}>]
[trace = <{disabled|enabled}>]
```

Set the trace variable to ***disabled*** to disable the sending, or to ***enabled*** to re-enable it.

Advantages of SpeedTouch™ Identification

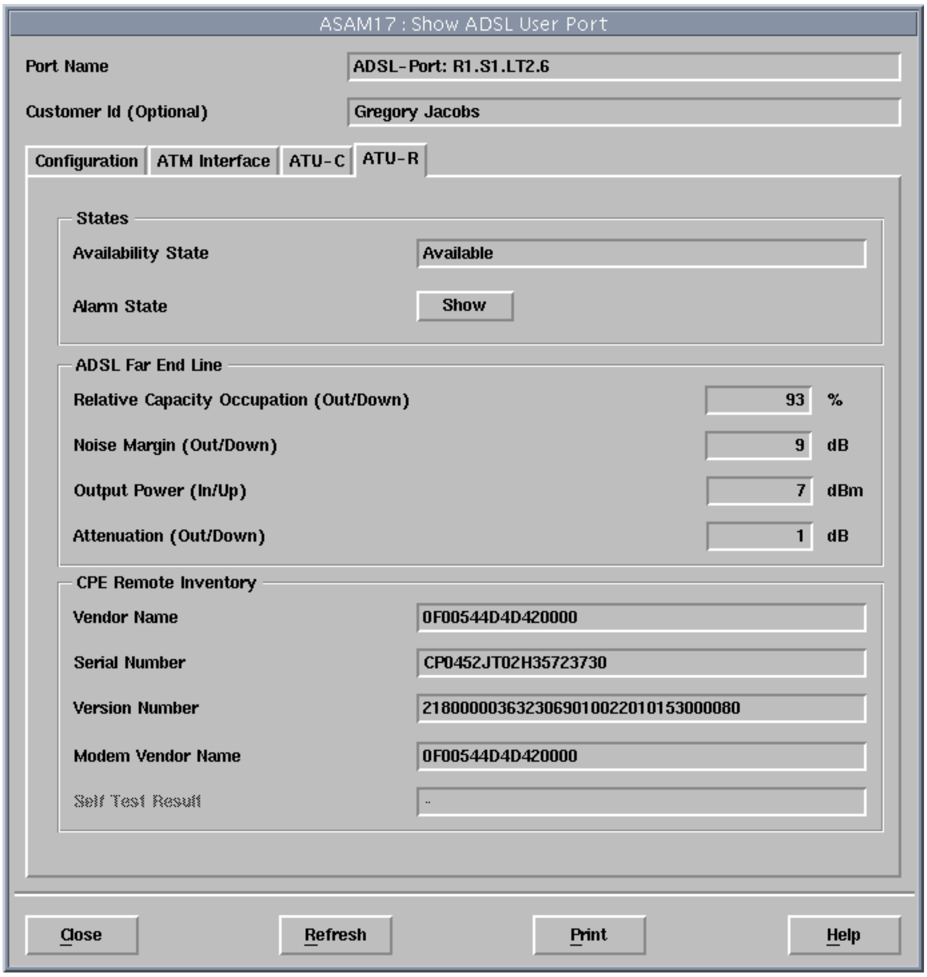
The SpeedTouch™ identification can be used to:

- View the evolution of the network to an open CPE market.
- Streamline customer support operation, and so it is mandatory to see which CPE is attached to a certain port on the DSLAM.

SpeedTouch™ Identification over AWS

The ADSL Work Station (AWS) is the graphical management tool to control and configure DSL lines on a DSLAM.

The figure below is an example of a screenshot of an AWS.



ASAM17 : Show ADSL User Port

Port Name: ADSL-Port: R1.S1.LT2.6

Customer Id (Optional): Gregory Jacobs

States

Availability State: Available

Alarm State: Show

ADSL Far End Line

Relative Capacity Occupation (Out/Down): 93 %

Noise Margin (Out/Down): 9 dB

Output Power (In/Up): 7 dBm

Attenuation (Out/Down): 1 dB

CPE Remote Inventory

Vendor Name: 0F00544D4D420000

Serial Number: CP0452JT02H35723730

Version Number: 2180000036323069010022010153000080

Modem Vendor Name: 0F00544D4D420000

Self Test Result: ..

The CPE Remote Inventory displays the values in a HEX notation.

11 SpeedTouch™ Advanced Diagnostics

About the Advanced Diagnostics

The SpeedTouch™ features advanced diagnostics to allow for extended monitoring of the system’s performance, operation and connection status. You can access the diagnostics either with the Web interface or via CLI. The Web interface also provides a page showing the entire office network.

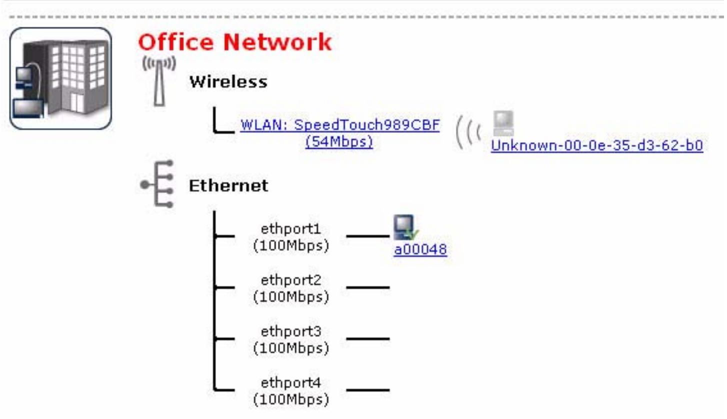
Overview

This chapter covers the following topics:

11.1 The Office Network Web Page

About the Office Network Web Page

The Office Network Web page shows all devices on the LAN and their main characteristics:



How to Access the Office Network Page

Proceed as follows:

Step	Action
1	Go to the **Basic** Web Interface
2	Do one of the following: ▸ Click the **Office Network option** in the navigation pane. ▸ Click the **Office Network icon** on the **Basic** home page.

Additional Pages

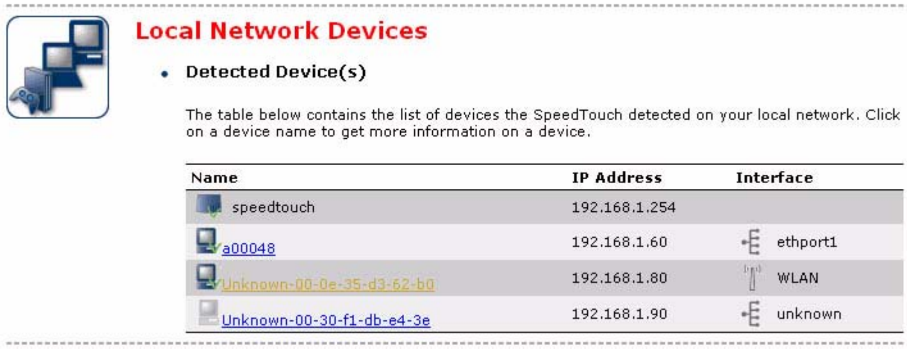
There are two additional pages available in the Office Network submenu:

- **Devices:** provides an overview of all devices.
- **Interfaces:** provides an overview of all interfaces.

To access these pages, click on the corresponding option in the navigation pane.

The Devices Page

The Devices page provides information on the devices present on the LAN:



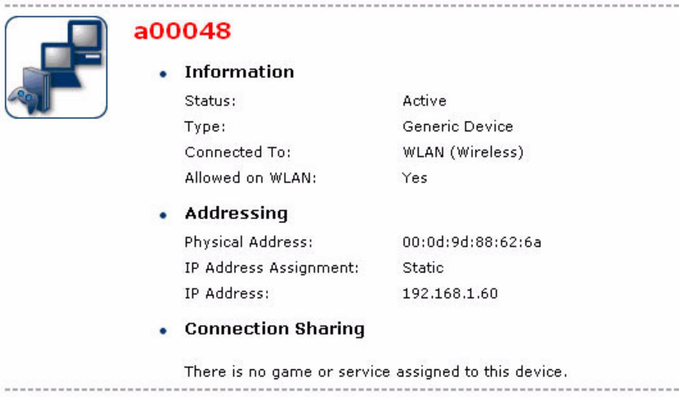
Local Network Devices

- **Detected Device(s)**

The table below contains the list of devices the SpeedTouch detected on your local network. Click on a device name to get more information on a device.

Name	IP Address	Interface
speedtouch	192.168.1.254	
a00048	192.168.1.60	ethport1
Unknown-00-0e-35-d3-62-b0	192.168.1.80	WLAN
Unknown-00-30-f1-db-e4-3e	192.168.1.90	unknown

To see more details of a specific device, click on the corresponding device name, e.g. **a00098** in the above example:



a00048

- **Information**

Status:	Active
Type:	Generic Device
Connected To:	WLAN (Wireless)
Allowed on WLAN:	Yes

- **Addressing**

Physical Address:	00:0d:9d:88:62:6a
IP Address Assignment:	Static
IP Address:	192.168.1.60

- **Connection Sharing**

There is no game or service assigned to this device.

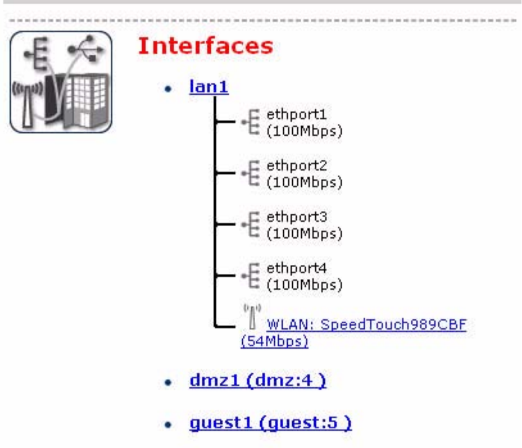
From these pages you can also perform the following tasks:

- Assign a game or application to a device
- Assign the public IP address of a connection to a device

To do this, click on the corresponding task in the **Pick a task**... area.

The Interfaces Page

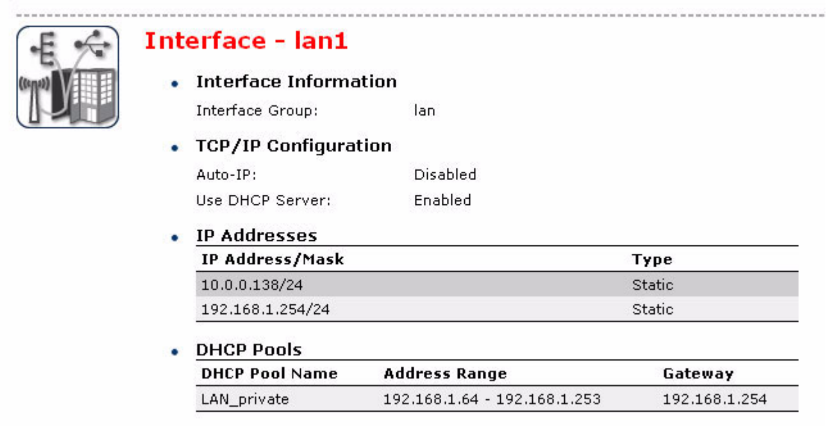
The Devices page provides information on the devices present on the LAN:



Interfaces

- lan1
  - ethport1 (100Mbps)
  - ethport2 (100Mbps)
  - ethport3 (100Mbps)
  - ethport4 (100Mbps)
  - WLAN: SpeedTouch989CBF (54Mbps)
- dmz1 (dmz:4)
- guest1 (guest:5)

To see more details of a specific interface, click on the corresponding interface name, e.g. **lan1** in the above example:



Interface - lan1

- Interface Information

Interface Group: lan

- TCP/IP Configuration

Auto-IP: Disabled
Use DHCP Server: Enabled

- IP Addresses

IP Address/Mask	Type
10.0.0.138/24	Static
192.168.1.254/24	Static

- DHCP Pools

DHCP Pool Name	Address Range	Gateway
LAN_private	192.168.1.64 - 192.168.1.253	192.168.1.254

11.2 The Diagnostic Web Page

Introduction

In this section the **Diagnostic** Web Page is described.

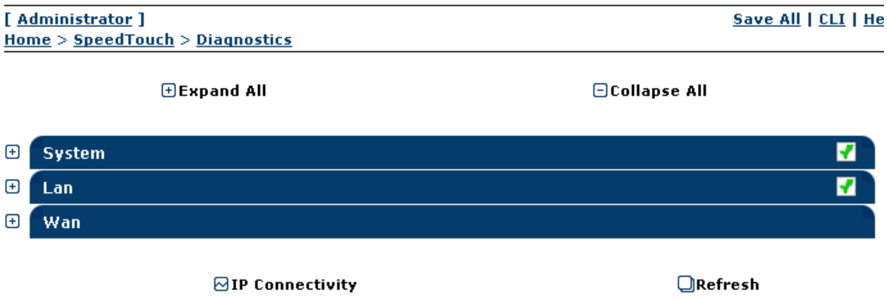
Opening the SpeedTouch™ Diagnostic Web Interface

Proceed as follows:

1 Open a web browser an go to the SpeedTouch™ Web Interface.

2 Go to the **Expert Mode** pages.

3 Open the diagnostic pages via **Home > SpeedTouch > Diagnostics**.



[Administrator] Save All | CLI | He
Home > SpeedTouch > Diagnostics

⊞Expand All ⊟Collapse All

⊞ System ✓
⊞ Lan ✓
⊞ Wan

IP Connectivity ❐Refresh

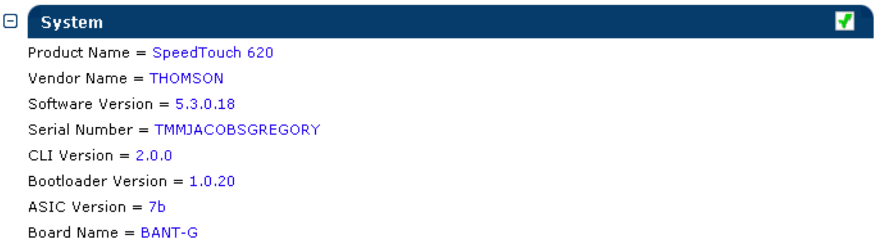
Navigation and action buttons

Following navigation and action buttons are available:

Click...	To..
⊞	Expand Diagnostics topics.
⊟	Collapse Diagnostics topics.
❐	Refresh the Diagnostics readings.
🗠	Test IP connectivity (WAN access)

System Diagnostics

Use the **expand** button (or **Expand all**) to open the System Diagnostics:



System

Product Name = SpeedTouch 620
Vendor Name = THOMSON
Software Version = 5.3.0.18
Serial Number = TMMJACOBSGREGORY
CLI Version = 2.0.0
Bootloader Version = 1.0.20
ASIC Version = 7b
Board Name = BANT-G

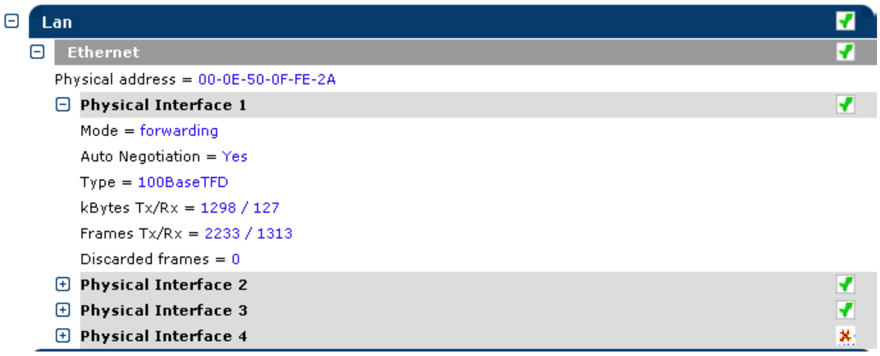
The information shown is mainly meant for uniquely identifying your device (for example as reference for helpdesking).

Among others, following information is provided:

- Device identifiers:
  - Serial number
  - Bootloader version
  - ASIC version
  - Board mnemonic
- System software identifiers
  - System software version
  - CLI and TAG Parser version

LAN Diagnostics

Use the **expand** button (or **Expand all**) to open the LAN Diagnostics:



⊟ Lan ✓
⊟ Ethernet ✓
Physical address = 00-0E-50-0F-FE-2A
⊟ Physical Interface 1 ✓
Mode = forwarding
Auto Negotiation = Yes
Type = 100BaseTFD
kBytes Tx/Rx = 1298 / 127
Frames Tx/Rx = 2233 / 1313
Discarded frames = 0
⊞ Physical Interface 2 ✓
⊞ Physical Interface 3 ✓
⊞ Physical Interface 4 ✗

The LAN Diagnostics provide information on the SpeedTouch™'s local network Ethernet interface(s).

Per Ethernet interface a visual indicator shows whether:

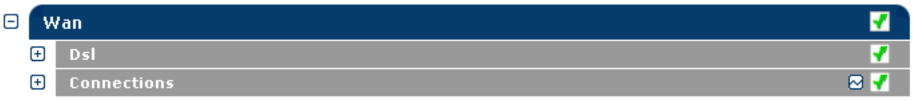
✓	The interface is connected.
✗	The interface is disconnected.

Per interface following data are shown:

- The interface's mode (forwarding or disabled)
- The operation mode of the interface:
  - 10BaseTHD: 10MB/s Base-T Half Duplex
  - 10BaseTFD: 10MB/s Base-T Full Duplex
  - 100BaseTHD: 100MB/s Base-T Half Duplex
  - 100BaseTFD: 100MB/s Base-T Full Duplex
- Whether the operation mode is selected via negotiation (Yes) or manually set (No)
- The number of Kilo Bytes and Ethernet frames that are sent and received
- The number of discarded Ethernet frames

WAN Diagnostics

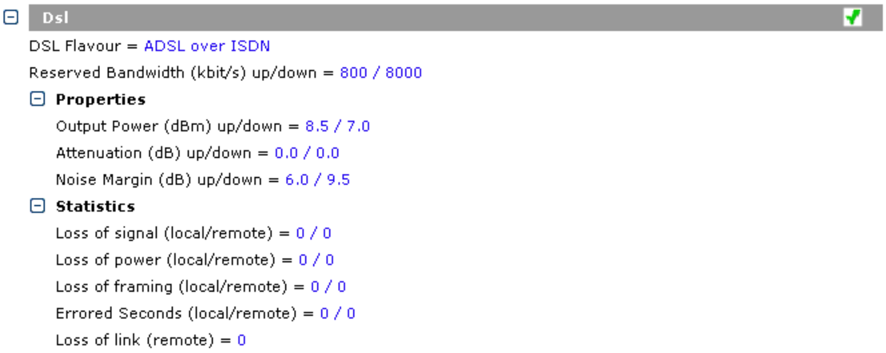
Use the **expand** button (or **Expand all**) to open the WAN Diagnostics:



⊟ Wan ✓
⊞ Dsl ✓
⊞ Connections ✓

The WAN diagnostics consists basically of two expandable parts:

- The physical layer DSL diagnostics:



⊟ Dsl ✓

DSL Flavour = ADSL over ISDN
Reserved Bandwidth (kbit/s) up/down = 800 / 8000

⊟ **Properties**

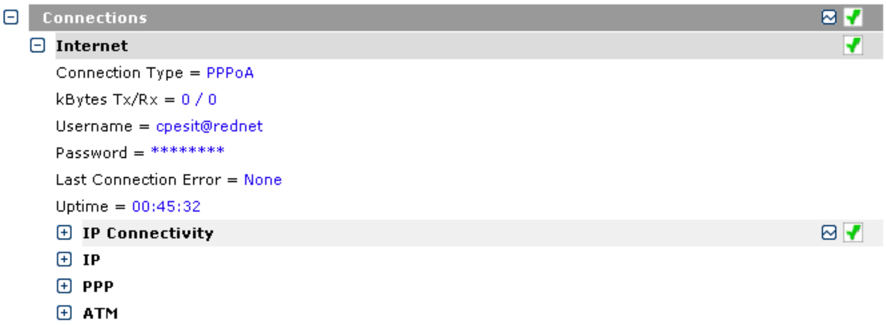
Output Power (dBm) up/down = 8.5 / 7.0
Attenuation (dB) up/down = 0.0 / 0.0
Noise Margin (dB) up/down = 6.0 / 9.5

⊟ **Statistics**

Loss of signal (local/remote) = 0 / 0
Loss of power (local/remote) = 0 / 0
Loss of framing (local/remote) = 0 / 0
Errored Seconds (local/remote) = 0 / 0
Loss of link (remote) = 0

Next to some general information on the DSL line flavour, status, bandwidth characteristic and throughput counters, some line properties and statistics are shown.

- The WAN connections diagnostics:



⊟ Connections ✓

⊟ **Internet** ✓

Connection Type = PPPoA
kBytes Tx/Rx = 0 / 0
Username = cpesit@rednet
Password = ********
Last Connection Error = None
Uptime = 00:45:32

⊞ **IP Connectivity** ✓
⊞ **IP**
⊞ **PPP**
⊞ **ATM**

This section shows per WAN connection relevant information on:

- Connection type and basic properties
- IP related characteristics of the connection
- (If applicable) PPP related characteristics
- ATM related characteristics

You can check IP connectivity per WAN connection or for all WAN connections via the check IP connectivity button.

11.3 Command Line Interface Diagnostics

Overview

This chapter covers the following topics:

11.3.1 About CLI Diagnostics

Introduction

This section describes some of the diagnostics available from the SpeedTouch™ Command Line Interface (CLI).

For a full description of the CLI commands see the "SpeedTouch™ CLI Reference Guide" for more information.

Accessing the CLI

You can access the CLI through:

- The SpeedTouch™ CLI Web Interface
- A Telnet session
- The serial Console interface

See "2 SpeedTouch™ Command Line Interface" on page 5 for more information.

Diagnostical CLI commands

Most CLI command groups feature one or more diagnostical commands. this chapter provides a brief description of these commands.

For a full description, refer to the "SpeedTouch™ CLI Reference Guide".

Traces

The following CLI commands feature traces:

adsl config	grp config
connection appconfig	grp rip config
connection debug	hostmgr config
cwmp traceconfig	ids config
dhcp client debug traceconfig	ip debug traceconfig
dhcp relay debug traceconfig	isdn debug traceconfig
dhcp server debug traceconfig	label modify
dns client config	label rule debug traceconfig
dns server config	mlp debug traceconfig
dyndns modify	mlp import
firewall debug traceconfig	nat config
firewall rule debug traceconfig	ppp ifconfig

11.3.2 Lower Layer Diagnostics

ADSL

The **:adsl info** displays ADSL statistics and information on current SpeedTouch™ DSL line status.

Although it is the same command for both SpeedTouch™ ADSL/POTS and ADSL/ISDN variants, the command features specific output parameters and counters per variant. ADSL reporting has been extended to report the unrestricted ADSL bandwidth, i.e. the bandwidth the line would have if the DSLAM would not be configured to limit ADSL bandwidth.

The partial example below shows ADSL diagnostics for an ADSL/ISDN variant:

```
=>:adsl info
Modemstate            :  up
Operation Mode        :  G.992.1 Annex B
Channel Mode          :  fast
Number of resets      :  1

Vendor                              Local           Remote
  Country             :               0f               00
  Vendor              :             TMMB
  VendorSpecific      :             0000             0000
  StandardRevisionNr  :               00               00

                                  Downstream        Upstream
Margin       [dB]     :              9.0              6.0
Attenuation  [dB]     :              1.0              0.0
OutputPower  [dBm]    :              7.0              8.5

Available Bandwidth                 Cells/s           Kbit/s
  Downstream          :            18867             8000
  Upstream            :             1886              800


Transfer statistics
    Errors
      Received FEC    :                0
      Received CRC    :                0
      Received HEC    :                0
      Transmitted FEC :                0
      Transmitted CRC :                0
      Transmitted HEC :                0

     Near end failures since reset
      Loss of frame:           0 failures
      Loss of signal:          0 failures
      Loss of power:           0 failures
      Errored seconds:         0 seconds
     Near end failures last 15 minutes
      Loss of frame:           0 seconds
      Loss of signal:          0 seconds
      Loss of power:           0 seconds
      Errored seconds:         0 seconds
     Near end failures current day
      Errored seconds:         0 seconds
     Near end failures previous day
      Errored seconds:         0 seconds
=>
```

ATM

Several commands are available to display specific Asynchronous Transfer Mode (ATM) statistics:

- **`:atm debug aal5stats`**
  Displays AAL5 port specific Asynchronous Transfer Mode (ATM) statistics
- **`:atm debug gstats`**
  Displays global ATM statistics
- **`:atm debug portstats`**
  Displays port specific ATM statistics

Below some examples are provided:

```
=>:atm debug aal5stats
port = dsl0
vpi = 8
[vci] = 36
[clear] =
:atm debug aal5stats port=dsl0 vpi=8 vci=36
        # of CRC-32 errors = 0.
        # of SAR timeouts = 0.
        # of too long SDU errors = 0.
        # of invalid CPI field = 0.
        # of invalid length errors = 0.
        # of aborted CPCS-PDUs = 0.
        # of out of memory errors = 0.
=>
=>:atm debug gstats
        # of received octets = 806130.
        # of transmitted octets = 806766.
        # of received cells = 15210.
        # of transmitted cells = 15222.
        # of unknown cells = 0.
        # of errors on the input = 0.
        # of errors on output = 0.
=>
```

ATM OAM

The SpeedTouch™ supports active Operation and Maintenance (F4/F5 OAM), LoopBack (LB) and Continuity Checks (CC) statistics via following commands:

- **`:atm oam cc send`**
  Sends CC activate/deactivate to connection.
- **`:atm oam ping`**
  Sends ATM loopback cells

Below an example is provided of an ATM OAM ping:

```
=>:atm oam ping dest RtPPPoA count 5
loopback: successful, sequence: 1 time: 4702 usec
loopback: successful, sequence: 2 time: 4754 usec
loopback: successful, sequence: 3 time: 5200 usec
loopback: successful, sequence: 4 time: 5130 usec
loopback: successful, sequence: 5 time: 4785 usec

--- loopback statistics ---
5 loopbacks transmitted, 5 successful, 0% loss, time 180 ms
rtt min/avg/max = 4702/4914/5200
=>
```

ATM Auto-Configuration via TR-37/ ILMI 4.0

The ILMI operates between the network and the ATM Network Termination at the customer premises for example the SpeedTouch™. ILMI 4.0 is supported on VP/VC 0/16. Meaning that the VCC or VPC can be provisioned via this management channel. The information received via the management channel can be used to dynamically add terminated connections.

The QOS information received via the management channel will create dynamic “qosbook” entries. This information shall be available on the CLI. This information shall not be saved.

The VP/VC information received via the management channel will dynamically add, for example an enabled LLC/SNAP Bridged interface or an attached PPPoE relay interface (depending on the received TR-37 information) on the SpeedTouch.

A CLI command is available to set the Auto-configuration mode between ACTIVE, PASSIVE, and PSEUDO.

```
=>:autopvc config mode=active
=>
```

The third option “PSEUDO” is used for the SpeedTouch with ATMFORUM that is using the VP= 0.

Use the following command to display the information retrieved via ILMI.

```
=>:autopvc list
Address  Type          Class    BestEff      Par1  Par2  Par3  Par4  Par5
8.36     CBR.c0/UBR.1  ubr       Enabled  Tx: 120   24    2048  12    12
         CBR.c0/UBR.1                     Rx: 120   24    24    0     0
=>
```

11.3.3 Router Services Diagnostics

DHCP

Following DHCP statistics are available:

- **:dhcp client debug stats**
  Displays statistics of SpeedTouch™'s DHCP client
- **:dhcp server debug stats**
  Displays statistics of SpeedTouch™'s DHCP server
- **:dhcp relay debug stats**
  Displays statistics of SpeedTouch™'s DHCP relay

Below some examples are provided:

```
=>:dhcp server debug stats
DHCP server state: Running
DHCP server statistics:
Corrupted packet recv            :         1
DISCOVER                         :         5
REQUEST                          :         3
DECLINE                          :         15
RELEASE                          :         1
INFORM                           :         6
Pure BOOTP REQUESTS              :         0
Other message types              :         213
OFFERs sent                      :         9
ACKs sent                        :         29
NAKs sent                        :         3
Relay agent options dropped      :         0
Lease table got full     : no
Ping table got full      : no
Second dhcp server seen : no
Total size of lease table: 256, in use: 0 free: 100 %
=>:dhcp relay debug stats
  DHCP relay statistics
-------------------------
Client packet relayed    :         5
Server packet relayed    :         5
Bogus relay agent        :         1
Bogus giaddr recv        :         0
Corrupt agent option     :         1
Missing agent option     :         2
Bad circuit id           :         0
Missing circuit id       :         0
=>
```

DNS

Following DNS server/forwarding statistics are available:

- **:dns server debug stats**
  Displays statistics of SpeedTouch™'s DNS server/forwarder

```
=>:dns server debug stats
Corrupted packets received        :         1
Local questions resolved          :         5
Local negative answers sent       :         9
Total DNS packets forwarded       :         3
External answers received         :         8
Spoofed responses                 :         1
Forward table full, discard       :         0
Spurious answers                  :         1
Unknown query types               :         0
=>
```

11.3.4 Routing Diagnostics

Firewall Rule

To check the operation of the SpeedTouch™ packet firewall following command is available:

- **:firewall rule debug stats**
  Displays per firewall rule, the number of packets (and corresponding bytes) that passed the firewall rule.

```
=>:firewall rule debug stats
chain                                       index    packets      bytes
-----------------------------------------------------------------------
sink                                            1          0          0
                                                2        402     100663
forward                                         1          0          0
                                                2          0          0
                                                3          0          0
source                                          1          0          0
forward_level                                   1          0          0
sink_system_service                             1          0          0
                                                2          0          0
                                                3          0          0
                                                4          0          0
                                                5          0          0
                                                6          0          0
                                                7          0          0
                                                8        269      94423
                                                9          0          0
                                               10          0          0
                                               11          0          0
                                               12          0          0
                                               13          0          0
                                               14          0          0
                                               15          0          0
                                               16          4         48
                                               17          0          0
                                               18        129       6192
=>
```

To reset the firewall statistics, use **:firewall rule debug clear**.

IP Diagnostics

There are two useful commands:

- **`ping:`** Send IGMP ECHO_REQUEST packets to a given destination
- **`traceroute:`** Send ICMP/UDP packets to trace the ip path.

Each of these can be given from the root of the CLI, as well as from any other place in any command group.

The Ping Command

The Ping command has the following syntax:

```
ping addr = <ip-address>
[count = <number{1-1000000}>]
[size = <number{0-20000}>]
[interval = <number{100-1000000}>]
[listen = <{disabled|enabled}>]
[dffield = <{disabled|enabled}>]
[srcaddr = <ip-address>]
```

It uses the following parameters:

Parameter	Value	Description
addr	<ip-address>	The destination IP address.
count	<number{1-1000000}>	The number of pings to send.
size	<number{0-20000}>	The size of the ping payload(s).
interval	<number{100-1000000}	The interval in milliseconds between packets.
listen	<{disabled|enabled}>	Don't send, just listen for incoming ICMP packets.
dffield	<{disabled|enabled}>	Enables setting of the don't fragment flag in the IP headers of the ping
srcadr	<ip-address>	The IP source address to use.

Example

Below is an example of a ping command and its reply:

```
{Administrator}=>ping addr 192.168.1.60
40 bytes from 192.168.1.60: icmp_id = 2, icmp_seq=0 time=962 us
40 bytes from 192.168.1.60: icmp_id = 2, icmp_seq=1 time=866 us
40 bytes from 192.168.1.60: icmp_id = 2, icmp_seq=2 time=757 us
40 bytes from 192.168.1.60: icmp_id = 2, icmp_seq=3 time=742 us
40 bytes from 192.168.1.60: icmp_id = 2, icmp_seq=4 time=753 us
```

The Traceroute Command

The traceroute command has the following syntax:

```
traceroute addr = <ip-address>
[count = <number{1-10}>]
[size = <number{1-20000}>]
[interval = <number{1000-60000}>]
[maxhops = <number{1-255}>]
[dstport = <number{1-65535}>]
[maxfail = <number{0-255}>]
[type = <{icmp|udp}>]
[utime = <{disabled|enabled}>]
```

It uses the following parameters:

Parameter	Value	Description
addr	<IP-address>	The destination IP address
count	<number{1-10}>	The number of times to reissue a traceroute request with the same time to live.
size	<number{1-20000}	The size of the packet payload.
interval	<number{1000-60000}>	The size of the packet payload.
maxhops	<number{1-255}>	The upper limit on the number of routers through which a packet can pass.
dstport	<number{1-65535}>	The UDP destination port number to send to.
maxfail	<number{0-255}>	The max number of consecutive timeouts allowed before terminating a traceroute request.
type	<{icmp|udp}>]	The type of traceroute packet(s).
utime	<{disabled|enabled}>	Display time in microseconds.

Example

Below is an example of a traceroute command and its reply:

```
{Administrator}=>traceroute addr 25.0.0.1 count 4
ttl=1   101.101.101.1   5731 us 5446 us 5466 us 5789 us
ttl=2   25.0.0.1        6089 us 5779 us 5699 us 6023 us
```

11.3.5 Ethernet Diagnostics

Non-intrusive Sniffing

For debugging purposes, the SpeedTouch™ offers a port mirroring feature. This means that, three out of the four physical ethernet ports can be used for network connections, while the remaining ethernet port can be used to connect a sniffing device. In this way, when there is a network problem, a sniffer can be connected without causing any intrusion in the network.

The first thing to do is to determine which ethernet port will be used for sniffing purposes. In the example below ethernet port four will be used. Use the following command to set port four as capturing port:

```
=>:eth switch mirror capture port=4
=>
```

To verify which port has been set as capture port, use the following command:

```
=>:eth switch mirror capture
Mirror capture port=4
=>
```

You can now set a port that you want to monitor to on the mirror capture port. This can be done for egress traffic (packets leaving the modem) and ingress traffic (packets towards the modem). In the example below we will monitor ingress traffic on ethernet port one and egress traffic on ethernet port two. Use the following commands:

```
=>:eth switch mirror ingress port=1 state=enabled
=>:eth switch mirror egress port=2 state=enabled:
```

All traffic comming in to the modem on ethernet port one will now be mirrored on ethernet port four. All traffic leaving the modem on port two will also be mirrored on ethernet port four. During port mirroring the capture port can still be used as a normal ethernet port.

To verify which port is being mirrored (ingress or egress) use the following commands:

```
=>:eth switch mirror ingress
Ingress mirror port = 1
=>:eth switch mirror egress
Egress mirror port = 2
=>
```

When there is no need to mirror traffic to ethernet port four any more you can disable the mirroring by executing the following command:

```
=>:eth switch mirror ingress port=1 state=disabled
=>:eth switch mirror egress port=2 state=disabled
```

11.3.6 Management Diagnostics

SNMP and Syslog

The SpeedTouch™ Simple Network Management Protocol (SNMP) and Syslog modules are industry standard management utilities to diagnose the device’s status, connections, etc.

For a full description of the SpeedTouch™ SNMP module and Syslog, see “10.1 An Introduction to SNMP” on page 134 and “10.3 The SpeedTouch™ Syslog” on page 160.

System

To monitor the SpeedTouch™ physical status, following command is available:

- **:system debug stats**
  Displays SpeedTouch™ cpu and memory statistics

```
=>:system debug stats
Cpu statistics:
---------------
   Maximum cpu load: 35%
   Minimum cpu load: 0%
   Average cpu load: 3%
   Current cpu load: 7%

Memory statistics:
------------------
   CHIP memory        total/used/free/min (in KB): 2815/1815/1000/1000
   Application memory total/used/free/min (in KB): 17804/3200/14603/
14555
=>
```

12 SLA Monitoring.

Introduction

The SpeedTouch™ supports Service Level Agreement/QoS monitoring on a continuous basis. An extended ping or trace route process can be started from the SpeedTouch™ to another node in the worldwide IP network, to measure the QoS (round-trip delay, packet loss, jitter, availability, routing stability, ..) to this other node and all intermediate nodes. Interim and final results can be consulted on web, CLI and via SNMP (RFC 2925).
Ping and traceroute are two very useful functions for managing networks. Ping is typically used to determine if a path exists between two hosts while traceroute shows an actual path

Ping Process

Ping is implemented using the Internet Control Message Protocol (ICMP) "ECHO" facility. The SpeedTouch™ supports the DISMAN-PING-MIB as in RFC 2925 and up to four concurrent ping tests.

SLA Ping Configuration

The SLA ping process can be configured by executing the following CLI command:

```
=>:sla ping add test=internet addr=11.0.0.138
```

The following parameters are mandatory :

- `test` : this is just a name to identify the ping test
- `addr` : this is the peer IP address to which the ICMP echo requests will be send

Now that we defined an SLA ping test we need to configure the test. The following parameters can be configured:

Parameter	Description	Values
test	The name of the ping test to configure.	string
addr	The destination IP address.	string
size	The size of the data portion to be transmitted in a ping probe.	number{0-20000}
timeout	The timeout value, in seconds, for a ping operation	number{1-60}
count	The number of times to send a ping probe.	number{1-15}
datafill	The data fill pattern of a probe packet.	quoted string
frequency	The number of seconds to wait before repeating a ping test.	number{0-65535}
maxrow	The max number of entries in the history table.	number{0-50}
storagetype	The storage type of this entry.	volatile or nonVolatile
trap	The value determines when and if to generate a notification.	[+/-]flag[+/-flag...] probeFailure testFailure testCompletion
trapprobefilter	The number of successive probe failures before initiating a pingProbeFailed notification.	number{0-15}
traptestfilter	The number of ping failures within one test before initiating a pingTestFailed notification.	number{0-15}
type	The implementation method to be used for the ping test.	IcmpEcho or UdpEcho
descr	The descriptive name of the ping test.	quoted string
srcaddr	Ip source address to be used.	ip-address
intf	Interface name.	none|loop|ipsec0|Internet|lan1|wan1|dmz1|guest1
bypassrt	Bypass the normal routing tables.	disabled or enabled
dsfield	The value to store in the Differentiated Service Field in the IP packet	number{0-255}

Use the following command to modify the SLA ping parameters:

```
=>:sla ping modify
test = internet
[addr] = 11.0.0.138
[size] = 200
[timeout] = 3
[count] = 15
[datafill] = test
[frequency] = 2
[maxrow] = 50
[storagetype] = nonVolatile
[trap] =
[trapprobefilter] = 2
[traptestfilter] = 12
[type] = IcmpEcho
[descr] =
[srcaddr] = 0.0.0.0
[intf] = lan1
[bypassrt] = disabled
[dsfield] = 0
:sla ping modify test=internet size=200 count=15 datafill=test
frequency=2 trapprobefilter=2 traptestfilter=12 intf=lan1
=>
```

Starting the SLA Ping

The SLA Ping process has been configured now. You now need to start the process, to do so, use the following command:

```
=>:sla ping start test=internet
=>
```

SLA Ping Result

Now that the SLA ping process has been started you can view the SLA ping results.

Use the following command:

```
=>:sla ping list
internet : [owner = modem] dest = 11.0.0.138
        size = 200 timeout[s] = 3 count = 15
        datafill = test
        frequency[s] = 2 maxrows = 50
        trapflag =
        probefailfilter = 2 testfailfilter = 12
        type = IcmpEcho storagetype = nonVolatile
        descr =
        srcaddr = 0.0.0.0
        intf = wan1 bypassrt = no dsfield = 0

        result Info
        status = in progress
        minrtt[us] = 1104 maxrtt[us] = 8910
        avgrtt[us] = 5006 rttsumofsqr[ms] = 130
        responses = 4 sentprobes = 4
        lastgoodresponse = 02/01/70 04:33:00.306942

=>
```

Following results will be displayed :

Name	Description
status	In Progress, Stopped
minrtt	Minimum RTT (Round-Trip-Time): microseconds
maxrtt	Maximum RTT: microseconds
avgrtt	Average RTT: microseconds
rttsumofsqr	RttSumOfSquares : milliseconds
responses	Probe Responses: number of responses received
sentprobes	Sent Probes: number of probes sent

SLA Ping History

A complete list of the SLA pings send can be view as well. To do so, use the following CLI command:

```
=>:sla ping hist test=internet owner=modem

Index  Rtt[us]               Status    RC                Timestamp
 2968     1106        resp received     0 02/01/70 05:00:45.840097
 2969     1120        resp received     0 02/01/70 05:00:46.850092
 2970     1081        resp received     0 02/01/70 05:00:47.860067
 2971     1134        resp received     0 02/01/70 05:00:48.870117
 2972     1128        resp received     0 02/01/70 05:00:49.880114
 2973     1108        resp received     0 02/01/70 05:00:50.890088
 2974     1129        resp received     0 02/01/70 05:00:51.900146
 2975     1128        resp received     0 02/01/70 05:00:52.910103
 2976     1123        resp received     0 02/01/70 05:00:53.920114
 2977     1129        resp received     0 02/01/70 05:00:54.929483
 2978     1131        resp received     0 02/01/70 05:00:55.939495
 2979     1153        resp received     0 02/01/70 05:00:58.960329
 2980     1125        resp received     0 02/01/70 05:00:59.969473
 2981     1087        resp received     0 02/01/70 05:01:00.979445
 2982     1073        resp received     0 02/01/70 05:01:01.989426
 2983     1124        resp received     0 02/01/70 05:01:02.999517
=>
```

Traceroute Process

Traceroute is usually implemented by transmitting a series of probe packets with increasing time-to-live values. A probe packet is a UDP datagram encapsulated into an IP packet. Each hop in a path to the target (destination) host rejects the probe packet (probe's TTL too small) until its time-to-live value becomes large enough for the probe to be forwarded. Each hop in a traceroute path returns an ICMP message that is used to discover the hop and to calculate a round trip time. Some systems use ICMP probes (ICMP Echo request packets) instead of UDP ones to implement traceroute. In both cases traceroute relies on the probes being rejected via an ICMP message to discover the hops taken along a path to the final destination. Both probe types, UDP and ICMP, are encapsulated into an IP packet and thus have a TTL field that can be used to cause a path rejection.

SLA Traceroute configuration

The SLA trace route process can be configured by executing the following CLI command:

```
=>:sla traceroute add test=route addr=11.0.0.138
=>
```

The following parameters are mandatory :

- **`test`** : this is just a name to identify the trace route test.
- **`addr`** : this is the peer IP address of which we want to trace the route.

Now that we defined an SLA ping test we need to configure the test. The following parameters can be configured:

Parameter	Description	Values
test	The name of the traceroute test to configure.	string
addr	The destination IP address.	string
size	The size of the data portion to be transmitted in a traceroute request.	number{0-20000}
timeout	The timeout value, in seconds, for a traceroute request	number{1-60}
probePerHop	The number of times to reissue a traceroute request with the same time-to-live value .	number{1-10}
port	The UDP destination port number to send to.	number{1-65535}
maxTtl	The upper limit on the number of routers through which a packet can pass.	number{1-255}
initTtl	The initial time-to-live value.	number{0-255}
createHopEntries	Enables creation of traceroute hop table.	disabled or enabled
frequency	The number of seconds to wait before repeating a traceroute test.	number{0-65535}
maxrow	The max number of entries in the history table.	number{0-100}
storagetype	The storage type of this entry.	volatile or nonVolatile
trap	The value determines when and if to generate a notification.	[+/-]flag[+/-flag...]{pathChange testFailure testCompletion}
type	The implementation method to be used for the traceroute test.	IcmpEcho ro UdpEcho
descr	The descriptive name of the traceroute test.	quoted string
srcaddr	Ip source address to be used.	ip-address
intf	Interface name.	none, loop, ipsec0, Internet, lan1, wan1, dmz1, guest1

Parameter	Description	Values
maxfail	The max number of consecutive timeouts allowed before terminating a traceroute request	number{0-255}
bypassrt	Enables bypassing of the normal routing tables.	disabled or enabled
dffield	Enables setting of the don't fragment flag in the IP headers of the traceroute requests.	disabled or enabled
dsfield	The value to store in the Differentiated Service Field in the IP packet.	number{0-255

Use the following command to modify the SLA traceroute parameters:

```
=>:sla traceroute modify
test = route
[addr] = 11.0.0.138
[size] = 0
[timeout] = 3
[probePerHop] = 3
[port] = 33434
[maxTtl] = 30
[initTtl] = 1
[createHopEntries] = disabled
[frequency] = 0
[maxrow] = 50
[storagetype] = nonVolatile
[trap] =
[type] = UdpEcho
[descr] =
[srcaddr] = 0.0.0.0
[intf] = none
[maxfail] = 5
[bypassrt] = disabled
[dffield] = disabled
[dsfield] = 0
:sla traceroute modify test=route
=>
```

Starting the SLA Traceroute

The SLA traceroute process has been configured now. You now need to start the process, to do so, use the following command:

```
=>:sla traceroute start test=route
=>
```

SLA Traceroute result

Now that the SLA traceroute process has been started you can view the SLA traceroute results.

Use the following command:

```
=>:sla traceroute list
route: [owner = modem] dest = 11.0.0.138
        size = 0 timeout[s] = 3 probePerHop = 3
        port = 33434 maxTTL = 30 InitialTTL = 1
        frequency[s] = 0 maxrows = 50
        maxfailures = 5 createHopEntries = no
        trapflag =
        type = UdpEcho storagetype =nonVolatile
        descr =
        srcaddr = 0.0.0.0
        intf = none     bypassrt = no dsfield = 0
        dffield = no

        result Info
        status = stopped
        currHopCount = 1 currProbeCount = 3
        testAttempts = 1 testSuccesses = 1
        lastGoodPath = 02/01/70 06:02:22.242930

=>
```

Following results will be displayed :

Name	Description
status	In Progress, Stopped
currHopCount	Reflects the current TTL value (range from 1 to 255) for a traceroute operation.
currProbeCount	Reflects the current probe count (1..10) for a traceroute operation.
testAttempts	The current number of attempts to determine a path to a target.
testSuccesses	The current number of attempts to determine a path to a target that have succeeded. The value of this object MUST be reported as 0 when no attempts have succeeded.
Lastgoodpath	Date and Time.

SLA Traceroute History

A history of the SLA traceroute can be view as well. To do so, use the following CLI command:

```
=>:sla traceroute hist test route owner modem
Index Ttl   Count    Addr        Rtt[us]   Status  RC    Timestamp
 1    1     1        11.0.0.138 1266      resp received 3 02/01/70
06:02:19.215236
 2    1     2        11.0.0.138 1267      resp received 3 02/01/70
06:02:20.224824
 3    1     3        11.0.0.138 1295      resp received 3 02/01/70
06:02:21.234845

=>
```

13 Resetting the SpeedTouch™

Introduction

If needed you can reset the SpeedTouch™ to factory defaults or just reboot.

Normal reboot

To reboot the SpeedTouch™ without erasing the current configuration,use the following command:

```
=>:saveall
```

This command will save the current configuration to the user.ini file.

Now enter the following command:

```
=>:system reboot
```

This command will reboot the SpeedTouch™ and will load the user.ini file upon reboot so the previous saved configuration will be restored.

Reset to factory defaults

To reset the SpeedTouch™ to factory defaults, usethe following command:

```
=>:system reset factory=yes proceed=yes
```

This command will delete the user.ini file (if the previous configuration was saved) and reboots the SpeedTouch™.

If there is an isp.def file present in the ‘dl directory it will load this file. The isp.def contains an Internet Service Provider specific configuration.

If no ips.def file is present on the device the SpeedTouch™ will reboot with the hardware defaults.

The Reset button

On the back side of the SpeedTouch™ there is a resetbutton. By pressing this button for three to six seconds the device will reboot and startup with the settings defined in the isp.def if present.

The reset button can be disabled by executing the following command:

```
=>:system config resetbutton=disabled
```

This command will disable the reset button on the back of the SpeedTouch™. In case of problems proceed as follows to enable the reset button again:

Step	Action
1	Switch off the SpeedTouch™.
2	Press and hold the reset button.
3	Switch on the SpeedTouch™.
4	Keep the reset button pushed in for ca. 30 seconds.
5	Release the reset button.

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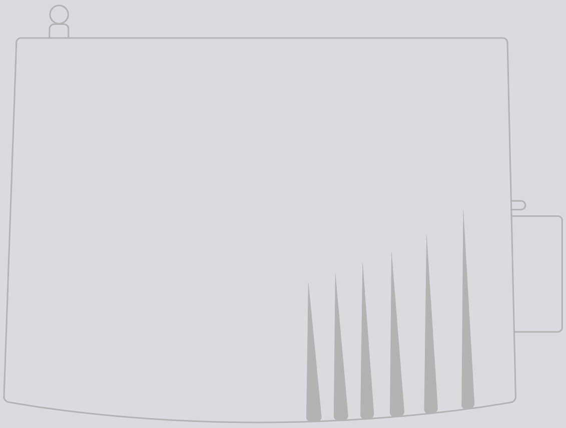

Need more help?

Additional help is available online at www.speedtouch.com

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